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PERSPECTIVES

ON LABOUR AND INCOME

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- Canada's employment downturn
- Immigrant low-income rates: The role of market income and government transfers
- The financial impact of student loans
- Employer top-ups
- Immigrants working in regulated occupations



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ON LABOUR AND INCOME

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Sébastien LaRochelle-Côté and Jason Gilmore

The Canadian labour market recently experienced its worst downturn since the recession of the early 1990s. Since employment last peaked in October 2008, employment declined by 2.3%, or 400,000 individuals. This article uses data from the Labour Force Survey to examine changes in employment levels from October 2008 to October 2009 across a variety of personal and job characteristics. Comparisons are also made with earlier recessions and the U.S. labour market.

13 Immigrant low-income rates: The role of market income and government transfers

Garnett Picot, Yuqian Lu and Feng Hou

The decline in earnings among immigrants over the past quarter century is well-documented, but its impact on various segments of the immigrant population is less well-known. This study examines long-term trends in the incidence of low income among working-age immigrants, immigrant seniors and the children of immigrants. The study looks at two main factors that contribute to the incidence of low income: market income and government transfers.

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The student borrowing rate among postsecondary graduates increased between 1995 and 2005, with borrowers differing little from non-borrowers in terms of employment rates and total personal income. However, borrowers were less likely to have savings or investments, or own their own homes. Total debt for borrower and non-borrower graduates age 20 to 29 was similar, while borrowers had lower assets and net worth than non-borrowers.

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- E use with caution
- F too unreliable to be published

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43 Employer top-ups

Katherine Marshall

To compensate for earnings lost by employees on leave, some employers provide parents with a Supplemental Unemployment Benefit (SUB), also known as a top-up. The SUB is a government initiative that employers use as a means of reducing the net earnings loss of their employees on leave. This article examines who is likely to receive a top-up and whether the benefit influences mothers' return-to-work behaviour.

51 Immigrants working in regulated occupations

Danielle Zietsma

This study focuses on university graduates whose studies would normally lead to employment in a regulated occupation such as medicine, law or education. It uses the 2006 Census to compute the proportion—or match rates—of such graduates working in the occupations for which they studied. The match rates for immigrants are then compared to similar groups of the Canadian-born. The study also compares the types of jobs held by immigrants and the Canadian-born not working in occupations for which they studied.

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Perspectives on Labour and Income

The quarterly for labour market and income information

Highlights

In this issue

■ Canada's employment downturn

... p. 5

- Since employment last peaked in October 2008, employment declined by 2.3%, or 400,000 individuals. Losses were concentrated among low-pay and short-tenure jobs, recent immigrants, youth, workers with lower levels of education, and lone mothers.
- Employment also fell for those in the manufacturing sector, in permanent positions, and for those with longer hours.
- Employment declined faster during the first few months of the downturn than in previous recessions, but employment levels stabilized sooner this time. As a result, the losses after 12 months were similar in proportion to those in the early 1990s downturn and proportionately smaller than those in the early 1980s downturn.
- Contrary to what happened in the previous downturns, the U.S. unemployment rate spiked earlier and higher than the Canadian rate. This was the first time since 1982 that the U.S. unemployment rate surpassed the Canadian rate.

■ Immigrant low-income rates: The role of market income and government transfers ... p. 13

- Between 1980 and 2005, the after-transfer, before-tax low-income rate rose among immigrants from 17% to 22%, while it fell among the Canadian-born.
- The rise in the low-income rate among immigrants is primarily due to falling family earnings. The market income-based low-income rate rose from 24% in 1980 to 33% in 2005.

- Low-income rates are also influenced by government transfers. Among all immigrants, the transfer system reduced the low-income rate by 29% in 1980 and by 34% in 2005. But this increased effect was not sufficient to prevent low-income rates from rising among immigrants.

- Low-income rates are higher among immigrant children than children with Canadian-born parents and the gap is increasing. These differences are again largely related to differences in the market income of their parents.

- Unlike the situation among other immigrant groups, low-income rates fell among immigrant seniors over the past quarter century. This reduction was the result of both increasing family market income and the transfer system's increased tendency to reduce low income over time.

■ The financial impact of student loans

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- In the past 20 years, average university tuition fees have more than doubled. At the same time, the proportion of postsecondary graduates with student loan debt and the average amount of their debt increased modestly. However, a small but rapidly growing proportion was carrying a high debt load at graduation, generating interest in the longer-term financial situation of student loan borrowers.
- Among postsecondary graduates age 20 to 45, student loan borrowers were less likely to have savings or investments compared to non-borrowers. A statistical model that accounts for personal and job characteristics estimated that 42% of borrowers and 52% of non-borrowers held savings or investments.

- Similarly, the likelihood of owning a home among postsecondary graduates was also lower for borrowers compared to non-borrowers: 53% and 60% respectively.
- Among graduates age 20 to 29, student loan borrowers have, on average, lower assets and correspondingly lower net worth than non-borrowers. Total debt was similar for borrowers and non-borrowers with postsecondary education.
- Student loan borrowers and non-borrowers who completed their postsecondary education did not differ significantly in terms of employment rates, total personal income and likelihood of having a retirement pension plan.

■ Employer top-ups ... p. 43

- In 2008, among mothers with paid jobs who received federal (EI) or Quebec (QPIP) maternity and parental leave benefits after birth, 20% reported collecting employer 'top-up' payments.
- Top-up payments averaged \$300 per week and lasted an average of 19 weeks—suggesting that most employer plans cover only the maternity leave portion of public benefits.
- Public sector employees were significantly more likely to receive a top-up and for a longer average period of time (48% and 22 weeks) than those in the private sector (8% and 12 weeks).
- Working for a company with a staff of over 500, being employed in Quebec and having an hourly wage of \$20 or more were also associated with the receipt of employer top-ups.
- Almost all mothers (96%) with top-up benefits returned or planned to return to their same employers within 18 months of birth, compared with 77% of mothers with EI/QPIP benefits only and 46% of mothers with no benefits.

■ Immigrants working in regulated occupations ... p. 51

- Immigrants who studied for work in a regulated occupation outside Canada were less likely to be working in that occupation in 2006 than either immigrants who had studied in Canada, or those who were born in Canada.

- In 2006, 24% of foreign-educated immigrants with fields of study that would normally lead to work in a regulated occupation were working in the associated profession. This compares to a 62% match rate among the Canadian-born.
- While foreign-educated immigrants were less likely to work in the regulated occupations for which they studied, this discrepancy narrowed with time spent in Canada. However, this discrepancy was still evident after immigrants had been in Canada for more than 10 years.
- The match rate of immigrants into regulated occupations varied by field of study. Immigrants with fields of study in health professions had higher match rates than those who studied to be teachers, engineers and lawyers.
- Among immigrants who were not working in the regulated occupation for which they studied, many had higher levels of education than normally required for the jobs they held in 2006. More than 1 in 10 worked in jobs that normally require no formal schooling.

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Canada's employment downturn

Sébastien LaRochelle-Côté and Jason Gilmore

For an extended period of time until October 2008, employment levels were at an all-time high and unemployment rates were near historic lows in Canada. In the months that followed, a sudden downturn in the world economy caused widespread employment losses for the first time since the 1990/92 recession. Since many of these jobs were lost in the early months of the recession, many observers were concerned about the severity of the recession.

One year later, the perspective changed somewhat. Employment losses moderated in the second half of the year with declines in some months offset by gains in other months. Still, questions remained about the effects of the downturn on some specific groups.

This report examines year-over-year changes in employment levels (between October 2008 and October 2009) across demographic groups, various types of families, and associated job characteristics. It also compares how this 12-month period stacks up against the first 12 months of the Canadian recessions of the early 1980s and early 1990s (see *Data source and definitions*). The employment situations in Canada and United States are also compared.

Results indicate that not all groups were equally affected by employment losses and that some groups even reported gains. Comparisons with earlier recessions indicate that although job losses were steep in the early months of the downturn, employment levels stabilized earlier than in previous recessions.

Net loss of 400,000 jobs since October 2008

In October 2009, employment in Canada was down 400,000 from the peak in October 2008, a loss of 2.3% in seasonally adjusted figures.¹ During the same period, the unemployment rate rose from 6.3% to

Data source and definitions

This study uses data from the Labour Force Survey (LFS). The LFS is conducted every month to collect information about the labour market activities of the population at least 15 years of age, excluding residents of collective dwellings, persons living on reserves and other Aboriginal settlements, and full-time members of the Canadian forces. Employed individuals are defined as those who had a job during the reference week of the survey.

According to the Labour Force Survey, employment peaked in October 2008 in Canada. In the LFS, employment estimates for some demographic groups and job characteristics are not seasonally adjusted. A detailed study of employment changes since the peak therefore had to wait until the release of October 2009 data because year-over-year variations are less likely to be affected by the seasonal adjustment process.

Employment 'changes' cannot be interpreted as the total number of jobs lost during the recession. LFS employment changes should be interpreted as **net** changes in employment levels since they represent the differences between all losses and gains over the period.

8.6%. Previous monthly releases have shown important variations across age groups, industries and regions.

One key feature of the downturn is that younger individuals and men from age 25 to 54 have been more affected by job losses (Table 1). Between October 2008 and October 2009, employment declined by 10.8% among young men under 25, and by 6.5% among women in the same age group. Men in their prime working years (25 to 54) were also affected as employment declined by 3.3% over the period for men in this age group. However, gains were seen among those 55 and over, especially for women, among whom employment increased by 6.0%.

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Table 1 Employment changes across age groups

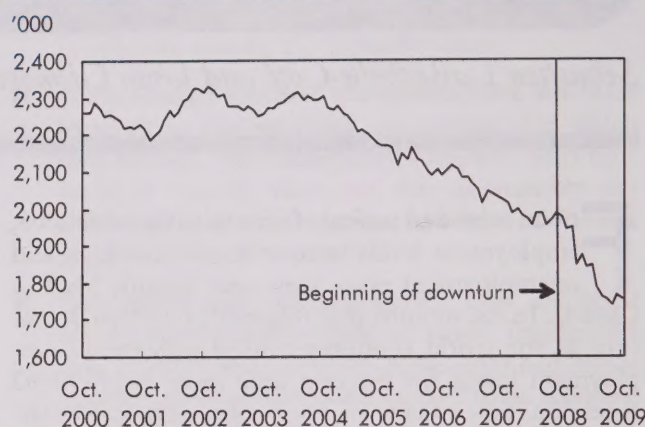
	October 2008	October 2009	Change	
		'000		%
Both sexes	17,194.7	16,794.8	-399.9	-2.3
Men				
15 to 24	1,318.9	1,176.3	-142.6	-10.8
25 to 54	6,244.0	6,038.0	-206.0	-3.3
55 and over	1,496.1	1,525.0	28.9	1.9
Women				
15 to 24	1,281.7	1,199.0	-82.7	-6.5
25 to 54	5,659.9	5,591.0	-68.9	-1.2
55 and over	1,194.2	1,265.5	71.3	6.0

Source: Statistics Canada, Labour Force Survey, seasonally adjusted data.

Another well-known feature of this recession is that some industrial sectors—particularly manufacturing, construction, natural resources, transportation and warehousing, and retail and wholesale trade—have been more affected than others. Manufacturing industries, in particular, declined by 218,000 between October 2008 and October 2009, accounting for over one-half of the net decline in employment over the period.

Manufacturing has received more attention than some other industries for reasons other than the scale of the job losses. First, the declines in this sector began much earlier. Manufacturing employment fell by 555,900 between 2004 and 2009. Thus the current downturn merely accelerated a long-term trend in that industry (Chart A). Second, while losses in most other industries were concentrated in the first five months of the recession, employment declines in manufacturing continued into subsequent months.² This complements the findings of other studies focusing on the manufacturing sector (Bernard 2009).

The effects of the downturn varied across the country (Table 2). With a decline of 205,900 (or -3.1%) over the 12 months, the province of Ontario experienced the greatest absolute employment losses, a fact likely associated with the higher concentration of manufacturing industries in that province. Proportionately, however, Alberta experienced the largest losses (-3.3%). In contrast, employment declined much more

Chart A Manufacturing employment

Source: Statistics Canada, Labour Force Survey, seasonally adjusted data.

modestly in the Atlantic provinces (-0.8%) and remained relatively stable in Manitoba and Saskatchewan over the period. Losses in Quebec (-1.6%) were slightly below the Canadian average, and British Columbia (-2.2%) had employment declines similar to Canada as a whole.

While the age, geographic and industrial dimensions of the downturn are well-known, questions remain about the impact on other population groups. In previous economic cycles, specific demographic groups and types of jobs were more affected by downturns.

Table 2 Employment changes across regions

	October 2008	October 2009	Change	
		'000		%
Canada	17,194.7	16,794.8	-399.9	-2.3
Atlantic	1,114.7	1,105.9	-8.8	-0.8
Quebec	3,890.2	3,828.1	-62.1	-1.6
Ontario	6,719.0	6,513.1	-205.9	-3.1
Manitoba and Saskatchewan	1,126.6	1,123.2	-3.4	-0.3
Alberta	2,035.2	1,967.2	-68.0	-3.3
British Columbia	2,309.0	2,257.2	-51.8	-2.2

Source: Statistics Canada, Labour Force Survey, seasonally adjusted data.

Employment changes across individual characteristics³

Previous studies have shown that higher levels of education have been associated with more stable employment during previous economic cycles (Picot and Heisz 2000). The current downturn is no exception.

Between October 2008 and October 2009, core working-age men with a high school education or less experienced the greatest employment losses (-5.2%), since many were previously employed in industries like manufacturing and construction (Table 3). Women with a high school education or less also experienced relatively high job losses (-3.6%).

As previous studies indicate, the number of employees was more stable among workers with higher educational attainment. Some job gains were seen among women with a college education (+0.9%) and small losses were observed among men and women with university degrees (-0.6% and -1.2% respectively).

Recent reports have documented the relative deterioration in the economic outcomes of immigrants, especially recently landed immigrants (see Picot 2008 for a review of these studies). The situation is similar in this downturn as employment declined faster for immigrants who landed within the last five years (-12.9%) than for the Canadian-born (-2.2%). Again, the bulk of the losses for these immigrants occurred in the manufacturing industry. On the other hand, immigrants who had been in Canada for more than five years experienced much smaller losses than the Canadian-born over the 12-month period.

Table 3 Employment changes across individual characteristics

	October 2008	October 2009	Change	
		'000		%
Total	17,270.7	16,909.4	-361.3	-2.1
Highest educational attainment				
Men				
High school or less	2,300.8	2,181.8	-119.0	-5.2
Postsecondary certificate or diploma	2,364.6	2,316.2	-48.4	-2.0
University degree ²	1,637.6	1,627.5	-10.1	-0.6
Women				
High school or less	1,746.0	1,682.8	-63.2	-3.6
Postsecondary certificate or diploma	2,232.5	2,253.5	21.0	0.9
University degree ²	1,724.6	1,703.4	-21.2	-1.2
Immigration status³				
Immigrant, landed within past 5 years	444.1	386.6	-57.5	-12.9
Immigrant, landed 5 to 10 years earlier	483.5	475.0	-8.5	-1.8
Immigrant, landed 11 years earlier or more	1,570.8	1,589.0	18.2	1.2
Canadian-born	9,253.9	9,049.6	-204.3	-2.2
Aboriginal^{3, 4}				
Aboriginal	225.8	216.7	-9.1	-4.0
Non-Aboriginal	11,725.9	11,505.9	-220.0	-1.9

1. Population age 25 to 54.

2. At least a bachelor's.

3. Based on a 3-month moving average.

4. Aboriginals living off-reserve only.

Source: Statistics Canada, Labour Force Survey, not seasonally adjusted.

Among Aboriginal peoples age 25 to 54 (excluding those living on reserves), the pace of employment losses during this 12-month period was double that of the non-Aboriginal population (-4.0% vs. -1.9%). Worthy of note is the fact that Aboriginal peoples living off-reserve continue to have higher unemployment rates and lower employment rates than non-Aboriginal peoples.

The effects of the downturn also differed by family type (Table 4). Youth employment in all families was particularly affected by this

downturn. Two-parent families with younger children were notably affected over this 12-month period, as employment fell by 2.5% among mothers and 2.4% among fathers in two-parent families with at least one child under age 18. In the first 12 months of the previous two downturns, the fathers of young children experienced more significant declines in employment than mothers.

Single mothers with younger children also experienced high rates of losses as their employment levels fell by 6.8%. Conversely, single

Table 4 Employment changes by economic family type

	October 2008	October 2009	Change	
		'000		%
Total	17,270.7	16,909.4	-361.3	-2.1
Unattached individuals	2,802.7	2,761.9	-40.8	-1.5
Husband-wife family				
Youngest child age 0 to 17	5,841.7	5,632.4	-209.3	-3.6
Father	2,751.1	2,685.6	-65.5	-2.4
Mother	2,306.7	2,249.4	-57.3	-2.5
Other family member	784.0	697.5	-86.5	-11.0
Youngest child age 18 to 24	1,683.1	1,618.6	-64.5	-3.8
Father	269.5	252.4	-17.1	-6.3
Mother	248.0	239.2	-8.8	-3.5
Other family member	1,165.5	1,126.9	-38.6	-3.3
Single-parent family				
Youngest child age 0 to 17	757.7	722.7	-35.0	-4.6
Father	120.8	126.3	5.5	4.6
Mother	453.4	422.6	-30.8	-6.8
Other family member	183.5	173.8	-9.7	-5.3
Youngest child age 18 to 24	362.0	358.0	-4.0	-1.1
Father	45.7	49.9	4.2	9.2
Mother	119.3	128.6	9.3	7.8
Other family member	196.9	179.5	-17.4	-8.8
Husband-wife family with youngest child age 25 and over	646.0	613.2	-32.8	-5.1
Husband-wife family with no own children	4,131.1	4,066.1	-65.0	-1.6
Other economic families	1,046.4	1,136.5	90.1	8.6

Source: Statistics Canada, Labour Force Survey, not seasonally adjusted.

fathers with younger children had an employment gain of 4.6% over the period.⁴ These recent changes in employment for both single mothers and single fathers are consistent with what occurred during the first 12 months of the previous two downturns.

Employment growth among individuals in 'other economic families' (e.g., adult siblings living together, an older parent living with an older child) was influenced by an increase in the number of individuals joining such families over this one-year period.

Employment changes across job characteristics

Other studies have shown that a period of employment downturn is typically associated with compositional changes in job type. One such example is self-employment, which tends to increase during periods of economic hardship (Picot and Heisz 2000).

Since October 2008, the number of those who were self-employed in their main job increased by 3.9%, spurred by significant growth after the first seven months of the

downturn (Chart B).⁵ Conversely, main-job employment among both private sector and public sector employees fell at roughly the same pace during the first few months of the downturn. In the seven months since then, the number of public sector employees remained stable while private sector employment continued to fall. The private sector trend reflects continuing difficulties in manufacturing, construction, transportation and warehousing.

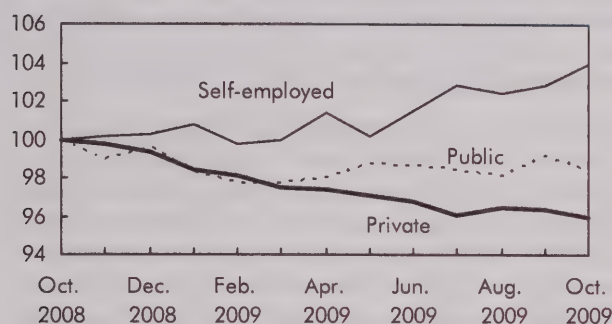
The extent of employment losses also varied considerably by hours of work, tenure, job status, unionization and wage category (Table 5).⁶

From the beginning of the downturn, losses in full-time employment were significant (-2.2%), and larger than among part-timers (-1.6%). Declines among those with longer hours—that is, 40 or more hours (-4.6% and -4.5% respectively) were especially significant. Conversely, the number of employees with a shorter full-time schedule—between 30 and 34 hours—rose over the period (+8.2%). This decline in longer hours and growth in shorter full-time schedules is consistent with changes in hours during the first 12 months of the previous two downturns. These changes may not be exclusively the result of job losses, as they could also be the result of reduced work hours among employed workers.

Employment losses were also concentrated among permanent employees. From October 2008 to October 2009, the number of permanent employees declined by 3.8%, while the number of temporary employees increased by 0.7%.

Chart B Index of employment by class of worker

Index (October 2008=100)



Source: Statistics Canada, Labour Force Survey, seasonally adjusted data.

Workers with short employment tenure were also significantly affected by the downturn, as employment declined by 662,700 (-17.8%) among those who had a tenure of one year or less. Conversely, there was an increase (+4.2%) in the number of workers among workers who had 1 to 5 years in their current jobs, and little change in the number of workers with more than 5 years in their current jobs. The extent of the losses likely reflects both the loss of employment among short-tenured positions and the lack of hiring.

Non-unionized workers were proportionately more affected by employment declines (-4.0%) than unionized workers (-1.7%) between October 2008 and October 2009. This reflects the concentration of union jobs in the more stable public sector.

Studies have shown that periods of economic decline can alter the distribution of earnings (Heisz et al. 2002). Employees earning less than

\$10 per hour saw the largest decline in employment over the period (-24.8%), followed by those who earned \$10.00 to \$19.99 per hour (-2.2%). Among those earning less than \$10, employment losses were largely concentrated in manufacturing, wholesale and retail trade, and accommodation and food services. The large loss of low-wage and short-tenured jobs is consistent with the particular difficulties noted for younger workers and very recent immigrants since they are overrepresented in these types of jobs.

Meanwhile, the number of employees who earned \$30 or more per hour grew—especially those earning at least \$40 per hour (+12.9%). Women accounted for two-thirds of the increase in those earning at least \$40 per hour, particularly those working in industries such as health care and social assistance, educational services, and public administration, as well as finance, real estate, rental and leasing.

Table 5 Employment changes by characteristics of main job

	October 2008	October 2009	Change	
		'000		%
Total	17,270.7	16,909.4	-361.3	-2.1
Part-time workers	3,275.5	3,221.7	-53.8	-1.6
01 to 14 hours	1,069.1	1,051.3	-17.8	-1.7
15 to 29 hours	2,206.4	2,170.4	-36.0	-1.6
Full-time workers	13,995.2	13,687.8	-307.4	-2.2
30 to 34 hours	1,173.9	1,269.7	95.8	8.2
35 to 39 hours	3,666.5	3,680.4	13.9	0.4
40 hours	6,557.8	6,257.6	-300.2	-4.6
Over 40 hours	2,597.0	2,480.1	-116.9	-4.5
Current job tenure				
1 year or less	3,723.4	3,060.7	-662.7	-17.8
More than 1 to 5 years	5,447.3	5,674.6	227.3	4.2
More than 5 years	8,099.9	8,174.2	74.3	0.9
Permanent job ¹	12,808.5	12,318.9	-489.6	-3.8
Temporary job ¹	1,806.8	1,820.0	13.2	0.7
Union coverage ¹	4,549.7	4,471.3	-78.4	-1.7
No union coverage ¹	10,065.5	9,667.6	-397.9	-4.0
Hourly wages¹				
Less than \$10.00	1,671.7	1,256.8	-414.9	-24.8
\$10.00 to \$19.99	6,027.4	5,895.4	-132.0	-2.2
\$20.00 to \$29.99	3,896.9	3,816.0	-80.9	-2.1
\$30.00 to \$39.99	1,921.9	1,931.7	9.8	0.5
\$40.00 and over	1,097.3	1,239.1	141.8	12.9

1. Paid employees only.

Source: Statistics Canada, Labour Force Survey, not seasonally adjusted.

Comparisons with earlier recessions

In this section, recent employment trends are compared with two previous downturns (based on seasonally adjusted figures). More specifically, the number of jobs just before the downturn is indexed to 100 and then tracked for the first 12 months of the three most recent employment downturns: June 1981 to June 1982, April 1990 to April 1991, and October 2008 to October 2009.

Employment declined much faster in the early months of the current downturn compared with the first few months of the 1981 and 1990 recessions (Chart C). Five months after the October 2008 peak, employment had fallen by 2.1%, compared with 0.8% in 1981 and 0.6% in 1990.

On the other hand, employment levels began to stabilize after the first 5 months of the current recession, while employment losses after the peak lasted 17 months in 1981/82 and 11 months in 1990/91. As a result, the job losses after 12 months were similar in proportion to the previous recession of the 1990s (-2.3%), and proportionately smaller than the recession of the 1980s (-3.9%). Even though such results might suggest that the labour market is getting back on track faster than in earlier recessions, history indi-

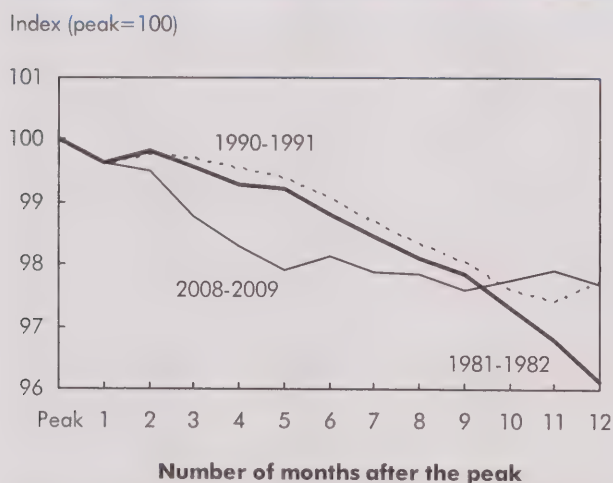
cates that employment recovery is not always a smooth upward path. For example, in the downturn of the early 1990s, the first 11 months of employment declines were followed by 6 months of modest growth, only to be followed by another 7 months of declines.

Canada-U.S. comparisons

Comparisons with employment losses sustained by Canada's major trading partner, the United States, are also of interest due to the high volume of trade between the two countries. Employment estimates from the two countries cannot be directly compared because of differences in survey design, but some comparisons can be made using unemployment rates⁷ (Chart D). Since employment in the United States last peaked in December 2007, conceptually comparable unemployment rates for both countries are examined for the period between December 2007 and October 2009.

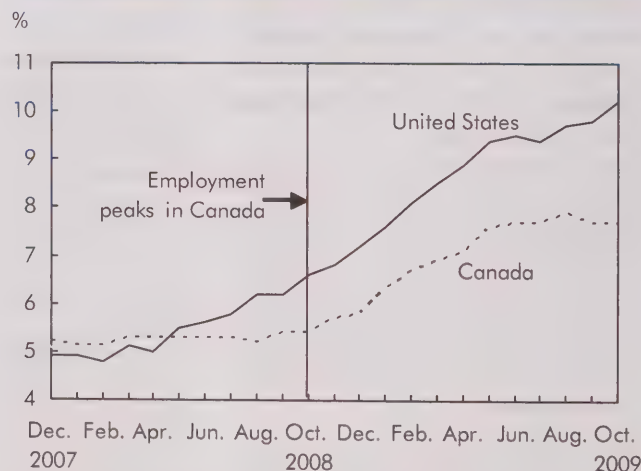
During the first six months of 2008, Canadian and American unemployment rates were almost at parity. Shortly thereafter—and for the first time since 1982—the U.S. unemployment rate surpassed the rate in Canada as the recession began to have a strong impact

Chart C Index of employment for last three downturns, the first 12 months



Source: Statistics Canada, Labour Force Survey, seasonally adjusted data.

Chart D Unemployment rate in Canada and the United States



Source: Statistics Canada, Labour Force Survey, adjusted to U.S. concepts; U.S. Census Bureau, Current Population Survey, seasonally adjusted data.

on the U.S. labour market. Since the beginning of the downturn in Canada, the unemployment rate also increased in Canada, but at a slightly slower pace than the United States. As a result, the Canadian rates have remained consistently below American figures since May 2008. During the previous two recessions, the Canadian labour market experienced the larger increase in unemployment rates.

It should be noted that the higher U.S. rate is related to greater job losses in financial, professional and business industries. According to the U.S. Current Employment Statistics (CES) survey, the financial and business sector accounted for nearly 25% of all job losses south of the border between October 2008 and October 2009.⁸ In comparison, the number of jobs in these industries rose in Canada during that period, albeit modestly.

Summary

For the first time since the 1990/92 recession, employment declined by significant margins in Canada. Since employment last peaked in October 2008, it subsequently declined by 2.3%, or 400,000 individuals. While many facts about the recession are relatively well-known—including larger employment declines among youth, men and workers in manufacturing industries—a series of questions remain about employment losses among other groups of workers and types of jobs.

Since the last employment peak in October 2008, it is now possible to examine annual variations in employment levels for a wider variety of population groups without having to deal with seasonal variation issues. In this report, year-over-year changes in employment levels were examined across a variety of personal, family and job characteristics. Comparisons with previous downturns and with the recent evolution of the U.S. labour market were also presented.

Employment losses in the current downturn were concentrated at the low end of the pay and tenure scale, thus disproportionately affecting those who tend to hold these jobs. Heavy employment losses were noted for very recent immigrants, young workers and those with lower levels of education. Other demographic groups were also proportionately more affected by losses: lone mothers, parents of younger children and non-unionized workers.

Despite the concentration of employment losses at the bottom of the pay scale, jobs typically not seen as 'vulnerable' were also disappearing. For example, employment declined faster among individuals working more than 40 hours per week and among permanent workers. And the loss of manufacturing employment that began in 2004 accelerated in the 12-month period from October 2008 to October 2009. On the other hand, the number of jobs with very high rates of pay increased over this period.

Results also indicate that this downturn differs from the previous ones in at least two ways. First, even though employment declined faster during the first few months than in previous downturns, it stabilized sooner in the current recession. As a result, employment losses after 12 months were similar in proportion to those in the early 1990s downturn and proportionately smaller than those in the early 1980s downturn. Second, the U.S. labour market was affected earlier, and continues to be in a deeper slump compared to Canada. In May 2008, the U.S. unemployment rate surpassed the Canadian rate for the first time since 1982 and that gap has yet to close.

Perspectives

■ Notes

1. Data not seasonally adjusted declined by 2.1%, or 360,000.
2. Losses have been particularly significant in transportation equipment manufacturing, furniture and related product manufacturing, fabricated metal product manufacturing, computer and electronic product manufacturing, and paper manufacturing.
3. In this section, employment changes are examined for prime-age workers only because overall results for personal characteristics tend to be disproportionately affected by the age composition of individuals within groups. The data have not been adjusted for seasonal variations. Although this affects absolute employment variation figures, changes in percentage terms are barely affected.
4. The sample size for lone fathers is relatively small.
5. Chart B is based on seasonally adjusted figures.
6. The numbers in Table 5 are not seasonally adjusted.

7. The Canadian unemployment rates have been adjusted to ensure that they are based on the same population covered by the Current Population Survey, the American equivalent of the Labour Force Survey.
8. The CES collects information about non-farm employment on a monthly basis. Results for October 2009 are based on preliminary data.

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Immigrant low-income rates: The role of market income and government transfers

Garnett Picot, Yuqian Lu and Feng Hou

The decline in earnings among immigrants over the past quarter century is well documented. Previous studies have identified several factors underlying immigrants' deteriorating labour market outcomes. The first is the shift in immigrant source countries from Europe and the United States to Asia and Africa, and the associated change in related characteristics, for example proficiency in official languages, perceived or real differences in educational systems, and cultural differences that may influence labour market outcomes. The second factor is the general decline in labour market entry earnings during the 1980s and 1990s that affected both 'recent' immigrants and the Canadian-born alike. The third set of factors relates to the decline in earnings returns to foreign work experience and other immigrant specific characteristics (Picot and Sweetman 2005, Reitz 2007, and Picot 2008).

Census data suggest that, in 1980, 'very recent' male immigrants (in Canada five years or less) earned on average about 85% that of the comparable Canadian-born. By 2005, this number had fallen to around 65%. As their relative earnings at entry declined, immigrants arriving since the 1980s needed more time to achieve earnings parity with Canadian-born workers. The earnings of immigrants entering Canada in the late 1970s approached those of the comparable Canadian-born after 15 to 20 years. However, the earnings of immigrants entering during the late 1980s and 1990s will likely take much longer to converge with those of the Canadian-born (Frenette and Morissette 2005).

But these are trends in *average* earnings. Less well-known is the fact that the earnings decline was greater at the bottom of the earnings distribution than at the top (Lemieux 2008). This phenomenon had a significant effect on trends in low-income rates among immigrants since they were more concentrated at the

bottom of the earnings distribution than Canadian-born workers. Picot and Hou (2003) found a significant rise in low-income rates among both entering immigrants and those who had been in Canada for many years.

Trends in low-income rates provide an important measure of family economic welfare at the bottom of the income distribution. Since low-income rates are based on total family income, which includes government transfer payments and investment and pension income, as well as employment earnings, they provide a more inclusive picture of the economic resources available to families than studies of earnings alone. And the vast majority of studies on the economic integration of immigrants are based on individual earnings only, rather than total family income. Moreover, this study uses the economic family concept which includes extended family living arrangements that are more common among immigrants.

This article provides an overview of the trends in low-income rates among immigrant groups and the Canadian-born population (see *Data source and definitions*). The main issue is whether the change in low-income rates was associated primarily with changes in market income (mostly income from employment) or the social transfer system (for example, Employment Insurance [EI] benefits, social assistance, and child benefits). Analysis is conducted for immigrants as a whole, and separately for immigrant children and immigrant seniors.

Low-income rates increasing among immigrants relative to Canadian-born

Between 1980 and 2000, the after-transfer, before-tax low-income rate rose among immigrants from 17% to 20%, while it fell among the Canadian-born from

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Data source and definitions

This study is based on 1981, 1986, 1991, 1996, 2001 and 2006 **Census** data. Immigrants who came to Canada in the census year or the year prior to the census year are excluded because the annual income information is either unavailable or incomplete.¹ Immigrant children are defined as persons age 0 to 17 and who were born abroad to non-Canadian parents, or those who are born in Canada in families where the person with the highest income is an immigrant.² Immigrant seniors are those age 65 or over.

Statistics Canada's **low-income cut-offs** (LICOs, 1992 base, after government transfers and before income taxes) were used to determine low-income status. The LICOs are 'fixed' low-income cut-offs, adjusted only for the changes in the Consumer Price Index (CPI). Low-income rates are based on economic family income after transfer and before tax because, prior to the 2006 Census, information on income tax paid was not collected in the census. Other low-income measures (LIMs)—like fixed-base LIMs³—are quite close to the LICOs and are very unlikely to produce substantively different trends.

A person is defined as in low income if his economic family income is below the LICO. An 'economic family' refers to a group of two or more persons who live in the same dwelling

and are related to each other by blood, marriage, common-law relationship or adoption. Individuals living alone or with unrelated persons are treated as 'one-person families.' All individuals in the same economic family will have the same low-income status. Thus, an individual's low-income status is affected by the income of all family members. Although multi-generational families are not common in general, they are more prevalent among some immigrant groups. Therefore, low-income rates of elderly immigrants are more likely to be affected by earnings of adult children with whom they live.

In this study, family income is split into two components: **market income** and **government transfers**. **Market income** includes employment income, investment income, private retirement pensions, superannuation and annuities and other money income. **Government transfer payments** include Employment Insurance (EI), Old Age Security (OAS), Guaranteed Income Supplement (GIS), Canada or Quebec Pension Plan, and child benefits, as well as other government transfers (including social assistance and workers' compensation).

17% to 14% (Table 1).⁴ This tendency towards rising rates among immigrants and falling rates among the Canadian-born continued during the more recent 2000 to 2005 period. In 2005, about 22% of immigrants were in low income.

There are some exceptions to this general trend. First, the low-income rate trends among immigrants in Canada for more than 20 years have resembled those of the Canadian-born. This group consists primarily

Table 1 Low-income rates by immigration status, 1980 to 2005

	Total	Canadian-born	Immigrants	Years since immigration				
				5 or less	6 to 10	11 to 15	16 to 20	Over 20
After-transfer, before-tax low-income rate				%				
1980	17.1	17.2	17.0	24.6	18.7	14.4	14.7	16.7
1985	18.7	18.5	19.3	34.2	26.0	19.8	15.9	16.5
1990	15.5	15.1	17.1	31.3	24.2	19.0	15.2	12.6
1995	19.1	17.6	24.7	47.0	35.3	27.2	22.1	15.5
2000	15.6	14.3	20.2	35.8	28.3	22.7	19.1	13.3
2005	15.3	13.3	21.6	36.0	28.0	25.8	21.5	13.3
Low-income rates relative to the Canadian-born								
1980	...	...	1.0	1.4	1.1	0.8	0.9	1.0
1985	...	...	1.0	1.8	1.4	1.1	0.9	0.9
1990	...	...	1.1	2.1	1.6	1.3	1.0	0.8
1995	...	...	1.4	2.7	2.0	1.6	1.3	0.9
2000	...	...	1.4	2.5	2.0	1.6	1.3	0.9
2005	...	...	1.6	2.7	2.1	1.9	1.6	1.0

Note: The sample size for the smallest cell in this table is 67,000.

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

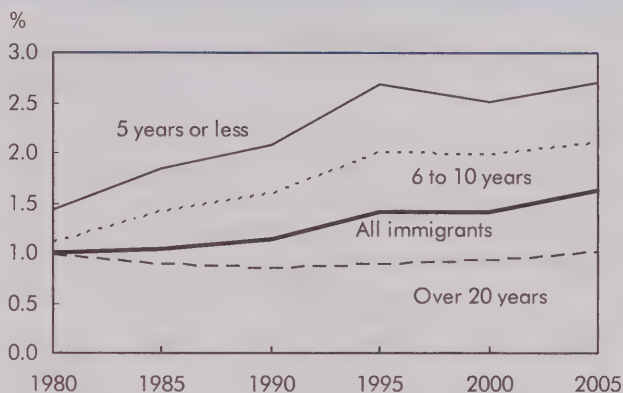
of immigrants from the developed nations of Europe who arrived before 1980. In addition, there may be groups within the Canadian-born whose low-income rates have risen, counter to the general downward trend. Low income is concentrated among five groups: lone parents, off-reserve Aboriginal peoples,⁵ persons age 45 to 64 and not in families, those with work-limiting disabilities, and recent immigrants (Hatfield 2003). Of these groups, only recent immigrants experienced significant low-income rate increases between 1989 and 2006. The rate declined significantly among lone mothers and was stable among the remaining groups (Picot and Michaud 2007).

Of course, low-income rates rise in economic recessions and fall in expansions. Such cyclical variations can mask long-term trends. Hence, a better way to report trends is to focus on *relative* low-income trends among immigrants, that is to say their low-income rate relative to that of the Canadian-born. Any fluctuation in the rates associated with the business cycle is likely to affect the trends for the Canadian-born as well as for immigrants. Therefore the comparison with the Canadian-born provides a rough control for business cycle effects.⁶ In 1980, immigrants had a low-income rate that was roughly equal to that of the Canadian-born. This relative rate remained roughly constant until 1990, and then rose to 1.4 by 1995, and 1.6 by 2005. In other words, the low-income rate was 60% higher for immigrants than for the Canadian-born in 2005.

Another important factor that affects low-income rates is the number of years immigrants have been in Canada. Earnings rise with years spent in Canada. Thus, low-income rates are highest among very recent immigrants (in Canada for five years or less). In 1980, very recent immigrants had low-income rates that were 1.4 times higher than those of the Canadian-born, while immigrants in Canada between 11 and 15 years posted relative rates below 1.0—lower than the rate for the Canadian-born.

Relative low-income rates generally rose among most immigrant groups over the 1980 to 2005 period (Chart A). In 2005, the after-transfer/before-taxes low-income rate among very recent immigrants was 2.7 times higher than that of the Canadian-born. Among immigrants in Canada for 11 to 15 years, it was 1.9 times higher.

Chart A Relative (to Canadian-born) low-income rates among immigrants by years since immigration



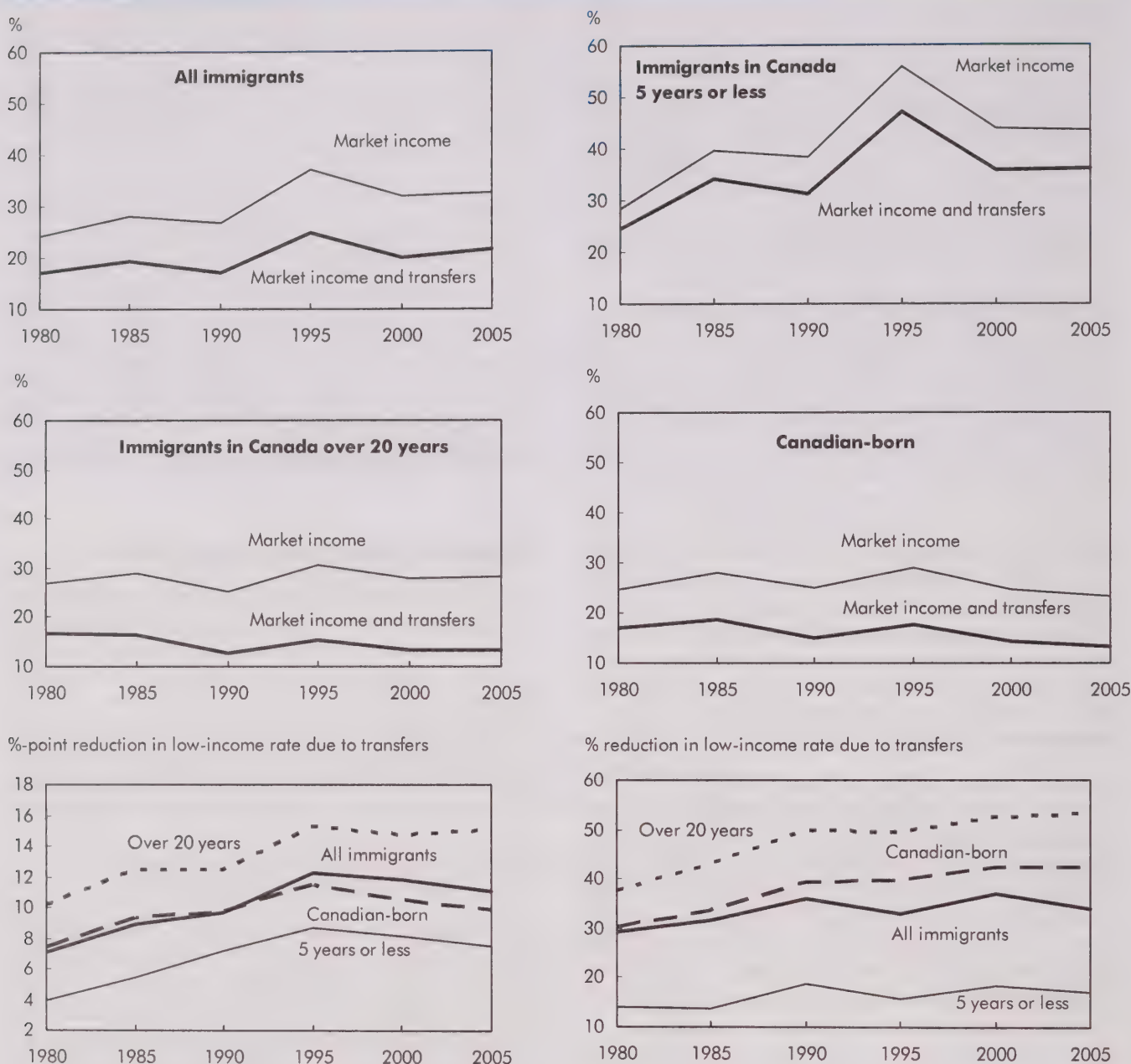
Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

Factors affecting low-income rates

There are three major factors that influence aggregate low-income rates: the labour market, through employment and earnings; the government, through direct and indirect effects of transfer programs;⁷ and demographic change, like the increase in the number of single-parent families, which can cause the aggregate rate to rise. This section focuses on market income and the direct effect of transfers.⁸ Immigrant low-income rates may have risen because market income (mainly employment income) fell among immigrants, the transfer system reduced the low-income rate to a lesser extent in 2005 than in 1980, or for both reasons.

To determine the relative importance of these two factors, low-income rates are first computed based on market income. This calculation indicates how many families would be in low income based on market income only, thus providing a direct measure of the extent to which the rise in low-income rates was related to changes in family market income. Transfer income is then added to family market income and low-income rates are recomputed.⁹ The difference between the low-income rates before and after transfers provides a measure of the direct effect of the transfer system on low-income rates.

Chart B Market-based and after-transfer low-income rates, all age groups



Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

This analysis examines the relative role that market income and transfers played in the change of low-income rates among immigrants.¹⁰ To examine longer-

term trends, this study focuses on 1980, 1990, 2000 and 2005, years that are roughly comparable with respect to the business cycle.

The situation for all immigrants is straightforward. The market income-based low-income rate rose significantly over the period, from 24% in 1980 to 33% in 2005, a 36% increase (Chart B). Hence, declining family market income resulted in a significant rise in the rate. The after-transfer low-income rate is lower, as transfers increase family income and reduce the number of people in low income. The after-transfer rate rose from 17% to 22% over the period, a 27% increase (Table 4). Since the increase in the rate was lower after transfers than before transfers, this implies that the transfer system increasingly offset market-based low income over the 1980 to 2005 period.

The transfer system offset can be seen more directly by measuring the percentage-point reduction in the low-income rate due to transfers. This distance between immigrants and the Canadian-born was larger in 2005 (11 percentage points) than in 1980 (7 percentage points). This same effect of the transfer system on rate reduction is also shown on a percentage basis rather than a percentage-point basis. The transfer system reduced the low-income rate by 29% in 1980,¹¹ 36% in 1990, 37% in 2000, and 34% in 2005. Whether calculated on an absolute percentage-point basis or a percent-reduction basis, the transfer system reduced the immigrant low-income rate more in 2005 than in 1980. Most of this change took place during the 1980s.

The rise in the low-income rate among all immigrants is due primarily to falling family earnings.¹² The situation is similar for most other immigrant populations examined, including very recent immigrants and those in Canada for over 20 years.

Low-income trends among immigrant children

Analysts often focus on low-income rates among children because growing up in low-income families may affect future opportunities for these children. Immigrant children are defined as those born to two immigrant parents or born in a family where an immigrant parent is the highest income earner.

The low-income rate among immigrant children is higher than that among other immigrants and the Canadian-born, and has been increasing at a more rapid rate. Immigrant children had a low-income rate of 27% in 2005, compared with 22% for immigrants of all ages, and 15% for children of Canadian-born parents. Immigrant children's low-income rate increased from 16% in 1980, to 25% in 2000, and to 27% in 2005—an increase of 66% over the period, compared with 27% for immigrants as a whole. This rise occurred while the rate among Canadian-born children was falling (Table 2).

Table 2 Low-income rates among children age 0 to 17 by immigration status¹

	Total	Canadian-born	Immigrants	Years since immigration				
				5 or less	6 to 10	11 to 15	16 to 20	Over 20
After-transfer, before-tax low-income rate				%				
1980	19.1	19.8	16.5	28.0	21.2	16.1	16.3	12.2
1985	20.7	20.9	19.8	39.5	28.5	22.0	17.3	13.5
1990	17.5	17.1	19.0	37.4	27.2	21.8	17.2	10.4
1995	22.1	20.0	30.2	55.8	40.7	32.0	25.8	16.0
2000	17.6	15.5	24.9	41.9	34.2	27.3	22.1	13.1
2005	18.0	14.8	27.4	42.4	31.7	31.0	25.3	14.2
Low-income rates relative to Canadian-born								
1980	...	...	0.8	1.4	1.1	0.8	0.8	0.6
1985	...	...	0.9	1.9	1.4	1.1	0.8	0.6
1990	...	...	1.1	2.2	1.6	1.3	1.0	0.6
1995	...	...	1.5	2.8	2.0	1.6	1.3	0.8
2000	...	...	1.6	2.7	2.2	1.8	1.4	0.8
2005	...	...	1.9	2.9	2.1	2.1	1.7	1.0

1. Based on the immigration status of the highest earner in the family.

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

The low-income rate is highest among children whose parents recently came to Canada, and falls with time spent in Canada. The rate among children in families who recently arrived in Canada (during the previous 5 years) was 42% in 2005, up from 28% in 1980.

Relative roles of family market income and transfers

In 2005, the low-income rate among immigrant children was higher than that for children with Canadian-born parents or working-age immigrants (age 18 to 59) (Chart C). This difference was entirely associated with lower market income among immigrant families with children. Market-based low-income rates were 14 percentage points higher among immigrant children than Canadian-born children in 2005, at 36% versus 22% (Table 5). The transfer system reduced these rates by 9 percentage points among immigrant children, and 8 among the Canadian-born. Transfers reduced the low-income gap between these two groups to a limited extent.

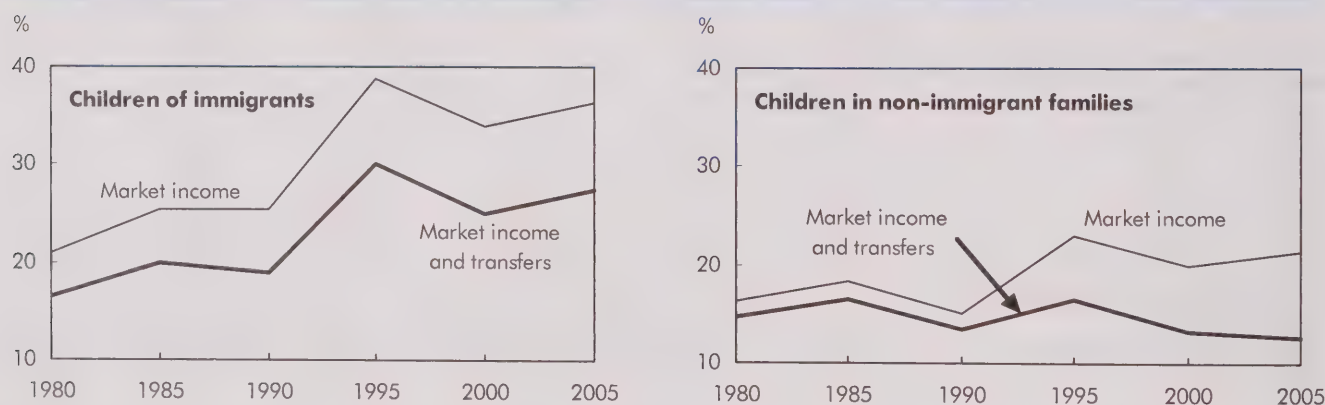
A similar situation emerges when immigrant children are compared with working-age immigrants. The 2005 market-based low-income rate was 35% (or 10 percentage points) higher among immigrant children than among immigrants age 18 to 59. After transfers are included, this difference is reduced to 30% (or 6 per-

centage points). In that year, transfers reduced the low-income rate more among children in immigrant families (9 percentage points) than among the working-age immigrant population (6 percentage points) (Table 6). The difference between the low-income rate for children and the working-age population is associated with differences in family earnings.

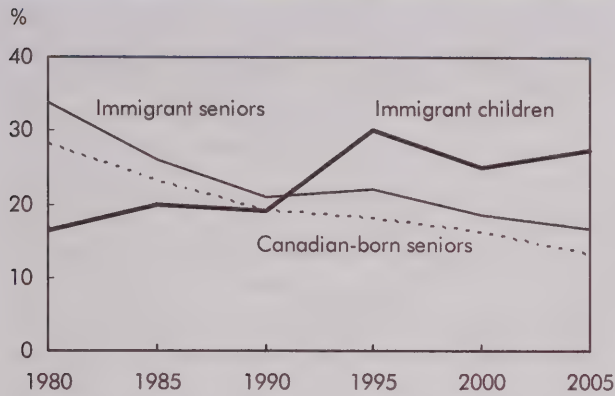
Low-income trends among immigrant seniors

While the low-income rate has been rising among the immigrant population as a whole, and immigrant children in particular, it has been falling among immigrant seniors. This downward trend is not restricted to immigrant seniors—the rate also fell among Canadian-born seniors. Since the 1970s, the low-income rate has fallen faster among seniors than for any other population group. And internationally, Canada went from having one of the highest low-income rates for seniors among Western nations in the late 1970s to one of the lowest by the 2000s (Smeeding 2003, Picot and Myles 2005). This trend was related to changes in transfer programs, the maturation of the Canada and Quebec Pension Plans (CPP/QPP), and increasing private pension income (Myles 2000). Low-income rates also fell for immigrant seniors (Chart D), but for somewhat different reasons.

Chart C Market-based and after-transfer low-income rates, children age 0 to 17¹



1. Immigrants status was that of the highest earning in the economic family with children age 0 to 17.
Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

Chart D Low-income rates among immigrant children and seniors

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

The low-income rate was cut in half between 1980 and 2005 among immigrant seniors, from 34% to 17% (Table 3). The rate in 2005 was only marginally higher among immigrant seniors than among Canadian-born seniors (13%). The relative rate (relative to the Cana-

dian-born of the same age) has changed little. It stood at 1.2 times that of the Canadian-born of the same age in 1980, and 1.3 in 2005.

The decline in low-income rates was heavily concentrated among elderly immigrants in Canada for over 20 years: the rate fell by 58% among this group between 1980 and 2005, and by 13% among very recent immigrant seniors. Very recent immigrants age 65 or over have seen their relative (to the Canadian-born) rate increase from around 1.1 in 1980 to 2.0 in 2005 (although their actual rates fell). In 2005, immigrant seniors in Canada for less than 20 years had low-income rates, at around 28%, significantly higher than Canadian-born seniors, at 13%.

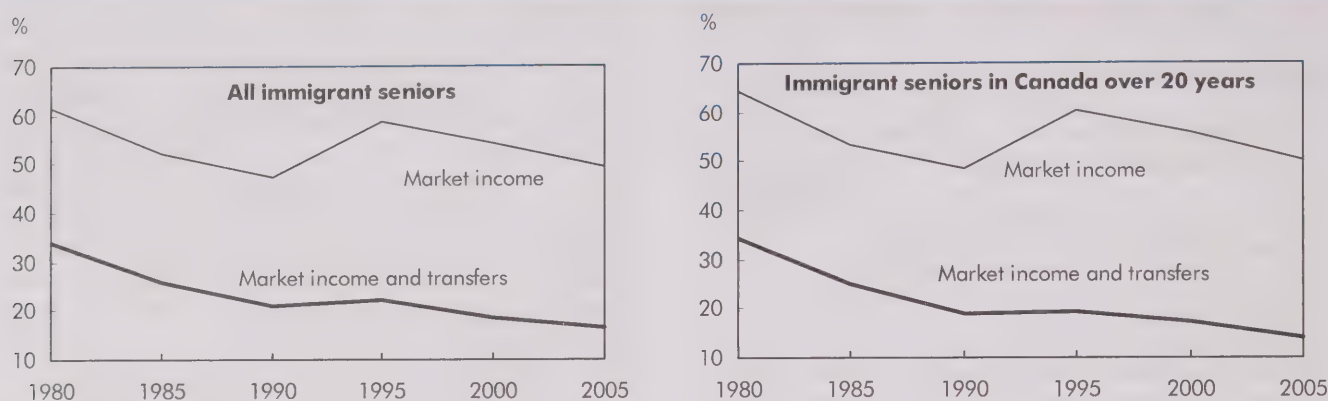
The low-income rate among immigrant seniors fell both because the economic families in which they lived had higher market income, and because transfers increasingly reduced seniors' low-income rates. However, the effect of rising market income was larger.

The market-based low-income rate among immigrant seniors fell by 20% (from 62% to 49%) over the past quarter century as a result of increased family market income (Chart E). In particular, it fell by almost 10% between 2000 and 2005. This trend runs counter to that for all other groups of immigrants, among whom market-based low-income rates increased. Market

Table 3 Low-income rates by immigration status for seniors age 65 or over

	Total	Canadian-born	Immigrants	Years since immigration				
				5 or less	6 to 10	11 to 15	16 to 20	Over 20
After-transfer, before-tax low-income rate				%				
1980	29.8	28.1	33.8	31.5	32.3	29.0	32.7	34.2
1985	23.8	23.0	26.0	34.7	38.6	27.4	25.9	24.9
1990	19.4	18.9	20.8	28.8	33.5	27.7	24.8	19.0
1995	19.2	18.1	22.1	38.1	36.7	29.5	29.5	19.5
2000	16.8	16.0	18.6	27.0	21.9	23.7	25.0	17.5
2005	14.3	13.3	16.6	27.2	29.9	27.7	27.6	14.2
Low-income rates relative to Canadian-born								
1980	...	...	1.2	1.1	1.1	1.0	1.2	1.2
1985	...	...	1.1	1.5	1.7	1.2	1.1	1.1
1990	...	...	1.1	1.5	1.8	1.5	1.3	1.0
1995	...	...	1.2	2.1	2.0	1.6	1.6	1.1
2000	...	...	1.2	1.7	1.4	1.5	1.6	1.1
2005	...	...	1.3	2.0	2.3	2.1	2.1	1.1

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

Chart E Market-based and after-transfer low-income rates, population age 65 and over

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

income rose among economic families in which seniors lived, and fell among all other immigrant age groups. This may have as much to do with the formation of an increasing number of intergenerational immigrant families, in which a younger member of the family is working, as with the employment trends among immigrant seniors themselves.

Immigrant seniors and the transfer system

Increases in government transfers have also tended to reduce the low-income rate among immigrant seniors, just as they did among the Canadian-born. In 1980, transfers reduced the low-income rate by 28 percentage points among immigrant seniors and by 33 percentage points in 2005 (Table 7). Hence, both increased market income and rising transfers contributed to the decline in the low-income rate among immigrant seniors. However, market income played a larger role. Of the 17 percentage-point decline in the low-income rate over the past quarter century, 12 percentage points were associated with market income effects and 5 percentage points with the direct effect of transfers. This result is particularly evident in the recent past. Between 2000 and 2005, the market-based rate fell by 10%, but transfers reduced the rate less in 2005 than in 2000.

Low-income rates are based on the total income of the economic family in which seniors live. The earnings and income sources of other family members are included. If, for example, immigrant seniors were more likely to live in multi-generational economic families with more younger earners in 2005 than in 1980, this would be reflected in the rising market income available to seniors. Differences through time in the ethnic composition of immigrant seniors and their tendency to live in multi-generational families could result in such an outcome.

There is some evidence to suggest that such a change in the living arrangements of seniors did take place. One-quarter of immigrants 65 or older were living in an economic family with a member in the 25 to 59 age group (and hence likely to be employed) in 1980. By 2005, one-third of immigrant seniors were in such families. And among very recent immigrant seniors, the proportions were much higher: 69% in 1980, rising to 76% in 2005.¹³

The family situation of immigrant seniors is important since the less time they have been in Canada, the lesser the effect of the transfer system on their low-income rates.

Transfer payments received by many immigrant seniors during their first 10 years in Canada are influenced to some extent by the eligibility rules associated with 3 major sources of transfers for seniors—Old Age Security (OAS), Guaranteed Income Supplement (GIS), and social assistance. The transfer system reduces the low-income rate comparably to Canadian-born seniors only among those in Canada for more than 20 years.

The OAS is generally not available to individuals who have been in Canada for less than 10 years and is prorated until they have spent 40 years in the country.¹⁴ The GIS is available to augment the OAS, even in the event of a partial OAS pension, but again usually after 10 years in Canada. And finally, the ‘sponsorship agreement’ accepted by those sponsoring family-class immigrants does not allow immigrant seniors to collect social assistance during their initial years in Canada¹⁵ (see Baker et al. 2009 for a description of these rules and their effects).

The longer immigrant seniors stay in Canada, the more the transfer system reduces their low-income rate. In 2005, the transfer system reduced the low-income rate by 9 percentage points for immigrant seniors in Canada for 5 years or less, and by 15 percentage points for immigrants in Canada for 6 to 10 years, compared with 39 percentage points for Canadian-born seniors, and 36 percentage points for immigrant seniors in Canada for more than 20 years.

Summary

Over the past quarter century, low-income rates have been rising among immigrants and falling among the Canadian-born. In most cases, the differing trends for immigrants and the Canadian-born are determined primarily by differences in family labour market income. The falling relative earnings of immigrants are the subject of numerous studies (see Picot and Sweetman 2005 and Reitz 2007 for reviews).

Low-income rates are also influenced by government transfers. In Canada, the direct effects of the income transfer system reduced the low-income rate more in 2005 than in 1980 for both the Canadian-born and immigrants. Most of this change took place during the 1980s. But among immigrants, this increased effect was not sufficient to prevent low-income rates from rising (except among immigrant seniors), since the ‘amount of work’ the transfer system had to do also increased significantly as earnings fell.

Low-income rates are higher among immigrant children than other immigrant age groups and children with Canadian-born parents. Furthermore, low-income rates have been rising faster among immigrant children than other groups of immigrants. This has been occurring while rates have been falling among their Canadian-born counterparts. These differences are again largely related to differences in the market income of their parents.

The reduction in the low-income rate among seniors in Canada has been well documented. This trend is also observed among immigrant seniors, but for different reasons. Unlike the situation among other immigrant groups, low-income rates fell among immigrant seniors over the past quarter century. This reduction was the result of both increasing family market income and the transfer system’s increased tendency to reduce low income over time. However, the market-income effect was larger—most of the decline was associated with lower market-based low-income rates among immigrant seniors.

Among immigrant seniors in Canada for 10 years or less, low-income rates declined only slightly. And their rates relative to Canadian-born seniors doubled over the past quarter century. The rate-reducing effect of transfers is much less for this group of immigrant seniors than for long-term immigrant seniors.

Perspectives

Table 4 Direct effect of transfer system on market income-based low-income rates, all ages

	Total	Canadian-born	Immigrants	Years since immigration				
				5 or less	6 to 10	11 to 15	16 to 20	Over 20
Market income-based low-income rate				%				
1980	24.5	24.6	24.1	28.5	22.7	18.4	19.3	26.9
1985	28.0	28.0	28.2	39.7	31.8	25.6	21.2	28.9
1990	25.3	24.9	26.7	38.5	31.1	26.2	21.1	25.1
1995	30.7	29.1	37.0	55.7	44.2	37.2	31.3	30.8
2000	26.3	24.7	32.0	44.0	37.7	31.7	28.2	28.1
2005	25.5	23.2	32.7	43.4	35.2	34.3	29.4	28.4
Market-based rates relative to Canadian-born								
1980	...	...	1.0	1.2	0.9	0.7	0.8	1.1
1985	...	...	1.0	1.4	1.1	0.9	0.8	1.0
1990	...	...	1.1	1.5	1.2	1.1	0.8	1.0
1995	...	...	1.3	1.9	1.5	1.3	1.1	1.1
2000	...	...	1.3	1.8	1.5	1.3	1.1	1.1
2005	...	...	1.4	1.9	1.5	1.5	1.3	1.2
Percent decline in market-based rates after transfers introduced								
1980	-30.0	-30.2	-29.3	-13.9	-17.7	-21.3	-24.2	-37.8
1985	-33.3	-33.7	-31.6	-13.8	-18.2	-22.6	-25.0	-43.1
1990	-38.6	-39.3	-36.0	-18.7	-22.3	-27.5	-28.2	-49.7
1995	-38.0	-39.6	-33.1	-15.6	-20.1	-26.7	-29.3	-49.7
2000	-40.9	-42.3	-37.0	-18.6	-24.9	-28.6	-32.2	-52.6
2005	-40.0	-42.6	-33.8	-17.2	-20.6	-24.8	-26.9	-53.2
				% point				
Percentage point decline in market-based rates after transfers introduced								
1980	-7.3	-7.4	-7.0	-4.0	-4.0	-3.9	-4.7	-10.2
1985	-9.3	-9.4	-8.9	-5.5	-5.8	-5.8	-5.3	-12.5
1990	-9.8	-9.8	-9.6	-7.2	-6.9	-7.2	-6.0	-12.5
1995	-11.7	-11.5	-12.2	-8.7	-8.9	-9.9	-9.2	-15.3
2000	-10.8	-10.5	-11.8	-8.2	-9.4	-9.1	-9.1	-14.8
2005	-10.2	-9.9	-11.1	-7.5	-7.2	-8.5	-7.9	-15.1

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

Table 5 Direct effect of transfer system on market income-based low-income rates for children age 0 to 17

	Total	Canadian-born	Immigrants	Years since immigration				
				5 or less	6 to 10	11 to 15	16 to 20	Over 20
Market income-based low-income rate				%				
1980	24.6	25.6	20.9	33.3	26.0	20.3	21.2	16.2
1985	27.2	27.6	25.5	46.2	35.1	28.1	22.8	18.4
1990	24.3	24.0	25.3	46.0	35.1	29.3	23.2	15.1
1995	30.4	28.0	38.8	65.8	50.4	42.1	35.2	23.0
2000	25.5	23.0	33.9	51.8	45.0	37.6	31.8	20.0
2005	25.9	22.4	36.3	51.9	41.1	41.1	34.8	21.3
Market-based rates relative to Canadian-born								
1980	...	...	0.8	1.3	1.0	0.8	0.8	0.6
1985	...	...	0.9	1.7	1.3	1.0	0.8	0.7
1990	...	...	1.1	1.9	1.5	1.2	1.0	0.6
1995	...	...	1.4	2.3	1.8	1.5	1.3	0.8
2000	...	...	1.5	2.2	2.0	1.6	1.4	0.9
2005	...	...	1.6	2.3	1.8	1.8	1.6	0.9
Percent decline in market-based rates after transfers introduced								
1980	-22.3	-22.5	-21.1	-16.1	-18.5	-20.4	-23.3	-24.9
1985	-23.8	-24.2	-22.1	-14.6	-18.9	-21.6	-23.9	-26.8
1990	-28.0	-28.8	-24.9	-18.8	-22.6	-25.6	-26.0	-31.3
1995	-27.1	-28.8	-22.3	-15.2	-19.2	-23.8	-26.6	-30.5
2000	-30.9	-32.8	-26.5	-18.9	-23.9	-27.3	-30.6	-34.3
2005	-30.6	-34.0	-24.4	-18.4	-22.8	-24.6	-27.1	-33.3
				% point				
Percentage point decline in market-based rates after transfers introduced								
1980	-5.5	-5.8	-4.4	-5.4	-4.8	-4.1	-5.0	-4.0
1985	-6.5	-6.7	-5.6	-6.7	-6.6	-6.1	-5.5	-4.9
1990	-6.8	-6.9	-6.3	-8.6	-7.9	-7.5	-6.0	-4.7
1995	-8.2	-8.1	-8.7	-10.0	-9.7	-10.0	-9.4	-7.0
2000	-7.9	-7.5	-9.0	-9.8	-10.7	-10.3	-9.7	-6.9
2005	-7.9	-7.6	-8.8	-9.5	-9.4	-10.1	-9.4	-7.1

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

Table 6 Direct effect of transfer system on market income-based low-income rates for population age 18 to 59

	Total	Canadian-born	Immigrants	Years since immigration				
				5 or less	6 to 10	11 to 15	16 to 20	Over 20
Market income-based low-income rate				%				
1980	18.3	18.7	16.2	25.6	19.8	15.5	15.8	12.9
1985	22.0	22.3	20.9	37.0	28.3	22.5	18.3	15.7
1990	19.1	19.0	19.5	35.2	27.0	21.7	17.4	13.1
1995	24.5	23.1	30.2	52.1	40.4	32.0	26.0	18.8
2000	19.8	18.5	24.8	40.7	33.6	26.9	22.8	15.3
2005	19.6	17.6	26.8	40.3	31.8	29.4	24.4	16.7
Market-based rates relative to Canadian-born								
1980	...	...	0.9	1.4	1.1	0.8	0.8	0.7
1985	...	...	0.9	1.7	1.3	1.0	0.8	0.7
1990	...	...	1.0	1.8	1.4	1.1	0.9	0.7
1995	...	...	1.3	2.3	1.7	1.4	1.1	0.8
2000	...	...	1.3	2.2	1.8	1.5	1.2	0.8
2005	...	...	1.5	2.3	1.8	1.7	1.4	0.9
Percent decline in market-based rates after transfers introduced								
1980	-21.0	-21.8	-16.6	-10.5	-14.1	-16.4	-18.0	-20.7
1985	-24.8	-25.6	-21.0	-13.4	-18.4	-20.5	-22.0	-25.9
1990	-28.6	-29.4	-24.6	-18.2	-22.4	-25.3	-25.2	-30.4
1995	-27.5	-29.0	-22.8	-15.4	-19.9	-24.2	-26.2	-31.1
2000	-27.3	-28.3	-24.1	-17.3	-22.0	-25.3	-27.4	-30.3
2005	-26.1	-28.0	-21.3	-16.5	-18.6	-22.0	-23.4	-28.3
				% point				
Percentage point decline in market-based rates after transfers introduced								
1980	-3.8	-4.1	-2.7	-2.7	-2.8	-2.6	-2.8	-2.7
1985	-5.5	-5.7	-4.4	-5.0	-5.2	-4.6	-4.0	-4.1
1990	-5.5	-5.6	-4.8	-6.4	-6.0	-5.5	-4.4	-4.0
1995	-6.7	-6.7	-6.9	-8.0	-8.0	-7.7	-6.8	-5.8
2000	-5.4	-5.3	-6.0	-7.0	-7.4	-6.8	-6.2	-4.6
2005	-5.1	-4.9	-5.7	-6.7	-5.9	-6.5	-5.7	-4.7

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

Table 7 Direct effect of transfer system on market income-based low-income rates for population age 65 and over

	Total	Canadian-born	Immigrants	Years since immigration				
				5 or less	6 to 10	11 to 15	16 to 20	Over 20
Market income-based low-income rate				%				
1980	61.1	60.9	61.7	36.1	38.6	47.7	53.6	64.3
1985	54.0	54.7	52.0	40.3	45.5	45.2	44.4	53.8
1990	50.6	51.8	47.4	37.1	42.6	45.3	44.8	48.4
1995	61.3	62.3	58.7	49.0	50.4	54.2	56.3	60.2
2000	57.5	58.8	54.3	43.6	44.6	49.4	50.9	55.8
2005	51.2	52.0	49.3	36.4	44.5	49.4	49.9	50.0
Market-based rates relative to Canadian-born								
1980	...	...	1.0	0.6	0.6	0.8	0.9	1.1
1985	...	...	1.0	0.7	0.8	0.8	0.8	1.0
1990	...	...	0.9	0.7	0.8	0.9	0.9	0.9
1995	...	...	0.9	0.8	0.8	0.9	0.9	1.0
2000	...	...	0.9	0.7	0.8	0.8	0.9	0.9
2005	...	...	0.9	0.7	0.9	0.9	1.0	1.0
Percent decline in market-based rates after transfers introduced								
1980	-51.2	-53.8	-45.2	-12.8	-16.3	-39.3	-39.1	-46.8
1985	-56.0	-58.0	-50.0	-13.8	-15.2	-39.3	-41.5	-53.6
1990	-61.6	-63.4	-56.0	-22.4	-21.3	-38.8	-44.7	-60.7
1995	-68.7	-71.0	-62.3	-22.4	-27.2	-45.6	-47.6	-67.6
2000	-70.8	-72.7	-65.7	-38.1	-50.9	-51.9	-50.9	-68.7
2005	-72.1	-74.5	-66.3	-25.4	-32.9	-44.0	-44.8	-71.7
				% point				
Percentage point decline in market-based rates after transfers introduced								
1980	-31.3	-32.8	-27.9	-4.6	-6.3	-18.7	-21.0	-30.1
1985	-30.2	-31.7	-26.0	-5.6	-6.9	-17.8	-18.4	-28.7
1990	-31.2	-32.8	-26.5	-8.3	-9.1	-17.6	-20.0	-29.4
1995	-42.1	-44.3	-36.6	-11.0	-13.7	-24.7	-26.8	-40.7
2000	-40.7	-42.8	-35.7	-16.6	-22.7	-25.6	-25.9	-38.3
2005	-37.0	-38.8	-32.7	-9.3	-14.7	-21.7	-22.4	-35.9

Source: Statistics Canada, Census of Canada, 20% sample microdata files, 1981 to 2006.

■ Notes

1. Collective dwelling residents and residents of Yukon, the Northwest Territories and Nunavut, and those on Indian reserves are excluded since the low-income cut-offs are not defined for these regions in census microdata files.
2. If every person in the economic family has zero income, the immigrant status of the oldest person is used.
3. The LIM is a low-income measure set at one-half the median income. If the LIM is rebased every year, it is a purely relative measure: across the board increases in income would not affect the rate. To avoid this situation, the LIM can be fixed at a point in time and moved forward by the Consumer Price Index.
4. Low-income rates rise and fall with the business cycle (economic conditions). Hence, to observe longer-term trends, rather than short-term fluctuations in rates due to recessions and expansions, the focus is on years that are roughly in the same position in the business cycle. Here, that means focusing on 1980, 1990, 2000 and 2005, years roughly at the peak of the business cycle. Using these years will provide a reasonable estimate of longer-term trends. The increases in low-income rates in 1985 and 1995 did not really reflect longer-term trends, but rather fluctuations associated with downturns in the business cycle.
5. On-reserve First Nations people were not included in this analysis because of data issues.
6. This comparison can basically be made in two different ways. The first method, and the one used in this paper, is a simple comparison of the aggregate rate observed in the raw data for immigrants (or any particular group of immigrants) with that of all of the Canadian-born. The second method is to compute relative low-income rates that take other differences between the groups into account (a multivariate approach). This approach was used in an earlier paper (Picot and Hou 2003), which examined trends over the 1980 to 2000 period. It found that compositional changes accounted for up to one-half of the rise in the low-income rate among recent immigrants in the 1980s, but were less important thereafter. In this study, the simpler approach is used to focus on the relative roles of market earnings and government transfers on low-income rates.
7. The direct effect of transfers refers to the extent to which the dollars received from the programs such as the Spouses's Allowance, EI and child tax credits move families from below to above the low-income cut-offs. This study does not account for indirect effects. Government transfers may have work-disincentive effects: people may be less likely to seek employment if they are receiving transfers, as compared with the hypothetical case where no transfer system existed. Hence, the market income-based low-income rate computed here is not the rate that would exist if no transfers were received by families.
8. Other calculations test whether changes in family status, either among immigrants or the Canadian-born, significantly affected the basic findings reported here, and indicate that they do not (results available upon request).
9. The same low-income cut-offs (LICOs) are used for the calculations using market-based and after-transfer family income.
10. This is not a comprehensive examination of the transfer system used by immigrants. It does not account for transfers received by families with market incomes above the low-income cut-off or families with very low market incomes for which transfers received leave them below the cut-off.
11. This percentage is simply the difference in the rate before and after transfers (7.3 percentage points in 1980) divided by the rate based on market income (24.5) times 100, i.e. 30%.
12. Family earnings can change because of changes in the number of people working, the number of hours worked by those employed, or because of changes in hourly wage rates. Census data do not allow differentiation between these factors.
13. The increasing proportion of multi-generational families could also reduce the low-income rate in the absence of any change in income since the LICO assumes that economies of scale can be achieved as economic family size increases.
14. Immigrants age 65 or older who have lived in Canada for less than 10 years may still qualify for OAS if their country of origin has an international social security agreement with Canada. To date, Canada has signed 51 social security agreements and, of these, 49 are in force (Elgersma 2007).
15. There is evidence to suggest, however, that many family-class immigrants receive Spousal Allowance benefits during the first 10 years (see Thomas 1996). Immigrant low-income rates: The role of market income and government transfers Garnett Picot, Yuqian Lu and Feng Hou

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The financial impact of student loans

May Luong

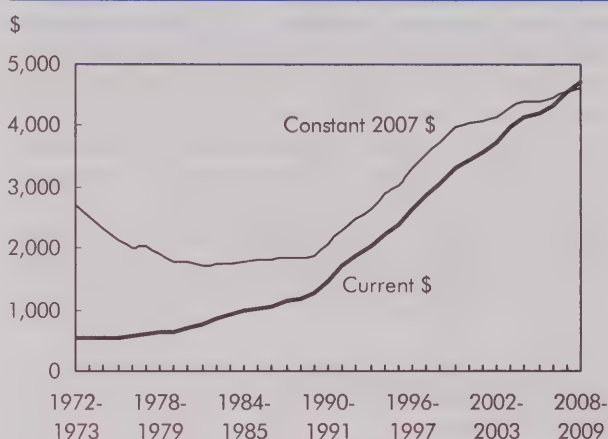
Interest in student loan debt heightened in the early 1990s when the average tuition fees jumped by 10% two years in a row. While the rate of tuition increase subsequently fell back to single digits, between 1989/1990 and 2008/2009 tuition fees more than doubled in constant dollars (Chart A).¹ The rise in tuition fees in most provinces brought increased attention to levels of student borrowing and associated debt loads. One study found that between 1982 and 1995, the proportion of bachelor's graduates with student loan debt rose from 45% to 47% for men and from 39% to 44% for women. Average loan amounts at graduation for those with a bachelor's degree also rose during this period by 121% for men and 145% for women (Finnie 2002).

The rise in average tuition fees is the result of a substantial shift in the funding of postsecondary education (PSE), a change requiring students to pay proportionally more while governments pay proportionally less (Schwartz and Finnie 2002). Between 1989 and 2009, average tuition fees as a percentage of total revenues for universities and colleges more than doubled, rising from 10% to 21% while funding from government fell from 72% to 55%.²

Although the cost of postsecondary education has increased for students, most individuals interested in pursuing studies are able to do so,³ whether through personal savings, parental contributions or government-sponsored student loans (see *Canada Student Loans Program*). For those not eligible for government-sponsored programs, loans through private institutions are also available.

It is widely accepted that borrowing for postsecondary education is a long-term financial investment. Individuals spend time and money on their education to increase the chances of obtaining meaningful, higher-

Chart A Average tuition fees for full-time undergraduate university students



Source: Statistics Canada, Tuition and living accommodation costs for full-time students at Canadian degree-granting institutions, 1972/1973 to 2008/2009.

paid employment (Keeley 2007). In addition to financial gains, it has been found that students acquire other skills and experiences through higher education. These include more opportunities for self-accomplishment, social interaction and independence (Oreopoulos and Salvanes 2009).

Although costs may not deter most students from obtaining a postsecondary education, the debts accrued may be substantial. Moreover, the average benefits of a postsecondary education will not be realized by all graduates—some will do better, others worse. Thus the accumulation of student debts may have lasting effects for some portion of graduates.

To date, the majority of the research relating to the rise in tuition fees has been focused on access to postsecondary education (Frenette 2009, Finnie and Mueller 2008, Frenette 2008, Frenette 2007, Frenette

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and Zeman 2007, Christofides et al. 2006, Frenette 2006, Finnie et al. 2005, and Frenette 2004). Research in the area of student loans has been focused on trends in student loan borrowing and characteristics of student loan borrowers (Kapsalis 2006 and Finnie 2002). Little research has been directed at exploring the impact that student loans may have on individuals' financial position after graduation. The key question is "How does the financial situation of student loan borrowers compare to the situation of their non-borrowing counterparts?"

This article examines the financial position of student loan borrowers compared to non-borrowers after they have left school and uses the Survey of Labour and Income Dynamics (SLID) and the Survey of Financial Security (SFS). It begins with a contextual look at recent trends in student borrowing and default rates using the National Graduates Survey (NGS) (see *Data sources and definitions*). It then examines personal income, savings and investments, the presence of a retirement pension plan, home ownership and the presence of a mortgage, and total assets, debts and net worth for student loan borrowers and comparable groups.

Trends in incidence of borrowing and debt level

Government-sponsored student loans comprise one option for postsecondary students without enough savings or income to cover all their education-related costs. Government-sponsored loans are usually the first option considered since, in most cases, interest does not accrue on these loans until the student leaves school (see *Canada Student Loans Program*). Borrowing directly from financial institutions or relatives may be another option if the individual does not qualify for government student loans.⁴ Students may also use a combination of loans from the government student loans program and from other sources (i.e., financial institutions, parents, other relatives, etc.) in cases where the cost of their postsecondary education exceeds their personal resources and the amount provided by the government student loans.

Data from the NGS indicate that the proportion of graduates who had borrowed money from any source (i.e., government-sponsored programs, banks, family members, etc.) to finance their postsecondary education increased from 49% to 57%⁵ between 1995 and 2005 (Chart B).⁶ Among borrowers, the proportion with only a government-sponsored loan decreased

Canada Student Loans Program

The Canada Student Loans Program (CSLP) was created in 1964 under the *Canada Student Loans Act* (HRSDC 2009a). Prior to the year 2000, loans to postsecondary students were directly provided by financial institutions while the interest portion was paid by the government. Upon graduation, students consolidated their loans and began repayment. Loans typically had a fixed ten-year amortization period, regardless of the size of the loan or the individual's financial situation. However, no restriction was placed on how quickly the loan had to be repaid.

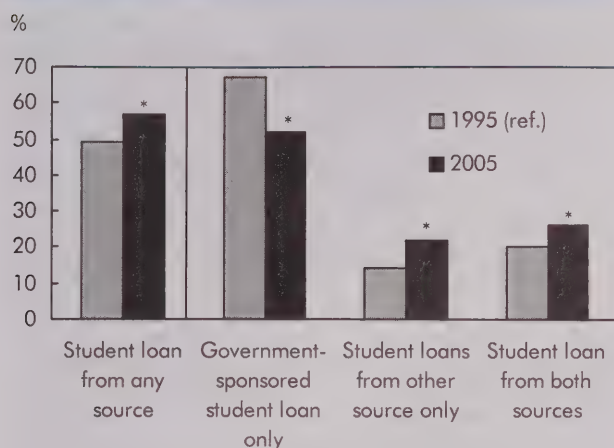
On August 1, 2000, the program was significantly changed and the Government of Canada started to directly finance loans to postsecondary students. This was done by forming the National Student Loans Service Centre (NSLSC), which provides the funds and manages the repayment. While most provinces participate in the CSLP, Quebec, the Northwest Territories and Nunavut continue to operate their own student financial assistance programs.

Although the CSLP is considered a national program, loan eligibility is determined by the provinces through their own needs assessment. Several factors are included in the assessment such as direct educational costs (for example tuition and books), living costs, expected savings through summer jobs, fewer work-related expenses, presumed parental contributions, scholarships, bursaries, and other financial resources. A loan certificate is issued (up to a certain maximum) if expected expenses exceed expected financial resources. Additional provincial loans and grants are then added (up to a certain maximum) to cover the remaining shortfall (Finnie 2002).

The government does not charge interest on loans for full-time students until after they have completed their studies or left school. While payments are not required until six months thereafter, interest starts to accumulate the month after the student leaves school. Part-time students are charged interest while they are in school and must make interest payments. Payment toward principal and interest is required once the student ceases his/her studies (Government of Canada 2009).

during this period from 67% to 52% while the proportion with only loans from other sources increased from 14% to 22%, and those with student loans from both government-sponsored programs and other sources increased from 20% to 26%.

As the proportion of graduates with student loans has risen over time, so too has the amount owed for those graduating with debt. Between 1995 and 2005, the average amount owing on government loans at graduation⁷ increased from \$14,700 to \$16,600.⁸ When student loans borrowed from other sources are factored in, the figures increased to \$15,200 and \$18,800 respectively.⁹

Chart B Student loan sources

* significantly different from the reference group (ref.) at the 0.05 level
 Note: Sample of students who ever borrowed for school is 20,457 representing 145,100 weighted individuals from the class of 1995 and 23,012 representing 200,700 weighted individuals from the class of 2005.

Source: Statistics Canada, National Graduates Survey, 1995 and 2005.

The increase in the average total student loan at graduation between 1995 and 2005 was much lower than the increase in tuition fees during this period. For example, the average total tuition for a 1995 graduate of a four-year program was \$10,300. The average student graduating a four-year program in 2005 paid \$16,900.¹⁰ So typical tuition fees increased \$6,600, while average government-sponsored student loan debt increased by \$1,900 and total student loan debt increased by \$3,600.

While the average student loan amount is one indication of the level of debt that graduates are accumulating, it is also important to examine the distribution of student loan debt. In 1995, the proportion of student loan borrowers that owed \$25,000 or more at graduation was 17%,¹¹ and this proportion increased to 27% by 2005.¹² Moreover, the proportion owing \$50,000 or more has tripled from 2% to 6% (Table 8). Consequently, in 2005, Canada not only had more individuals graduating with student loans, but also an increasing proportion graduating with larger debt loads than in the past.

Although debt loads have increased somewhat, the repayment period after graduation has not increased substantially. On average, the number of years that stu-

dents expected to take to repay their loans did not differ significantly between 1995 and 2005 (7.2 and 7.4 years respectively). Similarly, the proportion of students who expected to take more than 10 years to repay their loans did not increase significantly (from 18% to 20%).

Finally, default rates have also not risen with rising debt levels. The total default rate among all CSLP borrowers for the 2005/2006 school year was reported as 15%, which actually fell from the 2003/2004 default rate of 28%¹³ (HRSDC 2009b). Evidence from previous research suggests that inability to pay is the most important cause of default (Schwartz 1999). Other correlates of default include borrowers' lack of knowledge and confusion regarding repayment obligations, and that some borrowers simply refuse to pay (Ibid.).

Student borrowers and comparison groups

The findings so far provide a context on trends in student borrowing. This section uses data from the 2007 cross-sectional file of the Survey of Labour and Income Dynamics to examine whether there are differences in the employment status, total personal income, investments, registered retirement savings plans, home ownership, and presence of mortgage for student loan borrowers and non-borrowers.

The focus of this study is to compare borrowers with non-borrowers. However, the group of non-borrowers includes a large proportion of those who did not enrol in PSE, while borrowers would have at least some PSE. Since education level is highly correlated with individuals' financial situation, it is important to separate this group into those who have PSE and those who do not. As noted earlier, postsecondary graduation is associated with long-term monetary and non-monetary rewards (Oreopoulos and Salvanes 2009). Since these rewards are the result of both learning and non-random selection bias, graduates should be treated separately from non-graduates. Thus the primary comparison is between postsecondary graduates with or without student loans: shortened to PSE borrowers and PSE non-borrowers for brevity. Further controls will be introduced for type of institution—university versus non-university—and degree level for university graduates.

Although comparing graduates to graduates is the most obvious comparison, it has the potential to put the financial situation of graduate borrowers in a relatively negative light that doesn't adequately reflect the

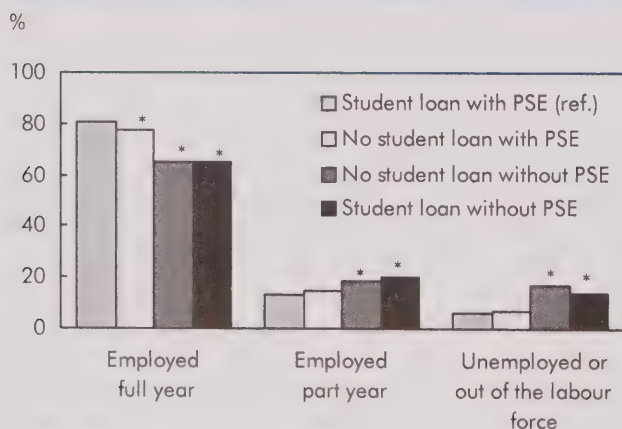
labour market advantages of postsecondary graduates vis-à-vis non-graduates. Thus our secondary comparison group is non-graduates in the same age ranges. Since this group also includes individuals with incomplete postsecondary studies, it is also possible to compare borrowers and non-borrowers without postsecondary education (borrowers without PSE and non-borrowers without PSE). Further controls distinguish those with some PSE from high school graduates and those with less than a high school education.

In each case, the target population includes those who are between the ages of 20 and 45 and who are no longer attending school.

Education level is the strongest correlate of employment and income levels

The SLID data reaffirm the labour market returns to postsecondary education. Overall, 74% of all respondents age 20 to 45 were employed full year in 2007, with approximately 16% employed part year.¹⁴ The remaining 10% were unemployed or out of the labour force. Among student loan borrowers with PSE, a significantly higher proportion were employed full year (81%) than all other groups (Chart C). However, the difference in the proportion of workers employed

Chart C Employment status by level of education and student debt



* significantly different from the reference group (ref.) at the 0.05 level
 Note: Sample size is 14,353 observations representing almost 8.6 million individuals age 20 to 45 who were not students in 2007.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

Models

While descriptive statistics can provide information on relationships among several variables, regression analysis can take many factors into account at once that may also influence the dependent variable. Below are two types of regression models used in this study.

The **linear regression model** uses the method of ordinary least squares (OLS) and is expressed as a linear combination of the explanatory variables. The linear regression model is used in estimating the predicted level of net worth since the dependent variable is continuous and consists of positive and negative values. The model takes the form

$$Y_i = \beta_1 + \beta_2 x_{i1} + \dots + \beta_p x_{ip} + \epsilon_i \quad i = 1, \dots, n$$

where Y_i is the dependent variable, x_{ip} are the independent variables or covariates, β_p are the estimated coefficients, and ϵ_i is the disturbance term.

Regression models of wage determination typically take the form of a **log-linear model** estimated by ordinary least squares using the logarithm of the dependent variable. However, in the **generalized linear model** (GLM) framework (McCullagh and Nelder 1989), this log-linear model can be estimated by maximum likelihood methods without having to transform the dependent variable. The GLM takes the form

$$Y_i = \exp(\beta_1 + \beta_2 x_{i1} + \dots + \beta_p x_{ip} + \epsilon_i), \quad i = 1, \dots, n.$$

The **logit model** is used when the dependent variable is dichotomous, taking the values of 0 and 1. Therefore, the logit model is used when estimating the probability of having investments, having a retirement pension plan, home ownership, and presence of a mortgage. The logistic function takes the form

$$P_i = 1 / (1 + e^{-Z_i}) = e^{Z_i} / (1 + e^{Z_i})$$

where $Z_i = \beta_1 + \beta_2 x_{i1}$ and P_i is the predicted probability. As Z_i ranges from $-\infty$ to $+\infty$, P_i ranges between 0 and 1.

full year between borrowers and non-borrowers with PSE was minimal (a 3 percentage point difference), while the difference between the borrowers with PSE and the two non-PSE groups was much larger (16 percentage points). Moreover, a larger proportion of borrowers and non-borrowers without PSE were unemployed or not active in the labour force (14% and 17% respectively) when compared with the two PSE groups.¹⁵

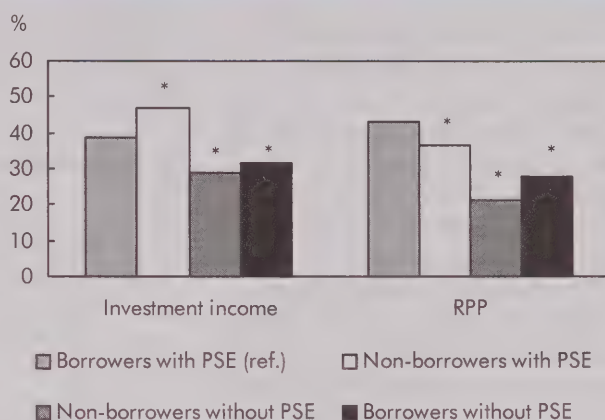
Regression analysis is used to control for observable factors that may have an influence on total personal income before taxes. The effect of other variables on income is estimated using a generalized linear model (GLM)¹⁶ in the log-linear form (see *Models*). The sample of individuals with PSE is estimated separately

from those without PSE. By separating the sample into PSE and non-PSE, the regression models are also able to control for education level while simultaneously accounting for the interaction effect between student loan status and PSE status. Both models indicate that student loan status does not have a statistically significant relationship with total personal income.¹⁷

Some other results are worth noting: in the PSE model, graduates with a non-university postsecondary education, on average, have personal income that is approximately 0.73¹⁸ of those with a bachelor's degree (Table 1). In other words, non-university postsecondary graduates have about 27% lower personal incomes than graduates with a bachelor's degree. And those with a graduate degree have almost 1.3 times the personal income of those with a bachelor's degree. However, education level within the non-PSE group is not significantly related to total income.

Overall, the results suggest that having a student loan does not affect individuals' income levels relative to other graduates. Among PSE graduates, educational attainment is positively associated with personal income. However, the total income of postsecondary

Chart D Proportion with investment income and registered pension plans



* significantly different from the reference group (ref.) at the 0.05 level
 Note: Sample size is 14,353 observations representing almost 8.6 million individuals age 20 to 45 who were not students in 2007.
 Source: Statistics Canada, Survey of Labour and Income Dynamics, 2002 to 2007.

Table 1 Results of generalized linear model on total personal income before taxes

	Model 1 with PSE ¹ Baseline \$79,500		Model 2 without PSE Baseline \$42,000	
	Estimated coefficient	Ratio	Estimated coefficient	Ratio
Intercept	11.283	...	10.646	...
Student loan status (ref. non-borrower)				
Borrower	-0.016	0.984	-0.109	0.897
Highest education level (ref. some postsecondary)				
Some high school	...	...	-0.201	0.818
High school graduate	...	...	-0.083	0.921
(ref. bachelor's degree)				
Non-university postsecondary	-0.321*	0.726*	...	...
Graduate degree	0.223*	1.250*	...	...

* significantly different from the reference group (ref.) at the 0.05 level

1. Postsecondary education.

Note: Sample size for Model 1 is 8,578 observations representing over 5 million individuals.

Model 2 is 5,256 observations representing over 3 million individuals. The target sample is those age 20 to 45 who were not students in 2007.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

non-finishers is not significantly different from the income of high school graduates and those who did not complete high school.

Student loan borrowers less likely to have savings and investments

Between 2002 and 2007, non-borrowers with PSE had the highest proportion of individuals with savings and investments (47%).¹⁹ This is followed by borrowers with PSE (39%) and the two non-PSE groups (both less than 33%) (Chart D).²⁰

Results from logit models²¹ estimating the probability of having investment income yield similar results (see *Models*). In the PSE model, results show that borrowers had a significantly lower probability of having investments

compared to non-borrowers (42% versus 52%) (Table 2).²² However, results from the non-PSE group show that borrowers were not significantly different from non-borrowers in their probability of having investments. Once again, education level also seems to make a difference. For instance, among those with PSE, those with a non-university postsecondary diploma or certificate were 17 percentage points less likely to have investments when compared with those holding a bachelor's degree. Similarly, in the non-PSE group, those who did not graduate from high school were 10 percentage points less likely to have investments than those who had some postsecondary education. However, high school graduates were not significantly different than those with some postsecondary education in their likelihood of having invest-

ments. Overall, the results show that the difference in the probability of having investments is only significant for borrowers in the PSE group. For this group, individuals with student loans are less likely to put money towards savings and investments.

Registered pension plans

The accumulation of retirement assets is another important component of personal wealth and financial well-being. One type of retirement asset is the registered pension plan (RPP), which is typically available in either unionized settings or highly skilled jobs associated with higher levels of education. RPPs may be funded by both the employee and the employer. Therefore, RPP contribution²³ is an indication that the respondent has an employer retirement pension plan. Between 2002 and 2007, bor-

rowers with PSE had the largest proportion of individuals with an RPP (43%) followed by non-borrowers with PSE (36%). Both of these groups are more likely to have an RPP than non-borrowers without PSE (21%) and borrowers without PSE (28%) (Chart D).

Logit models are used to estimate the probability of having an RPP while controlling for other related factors (*see Models*).²⁴ Once education levels and other factors are controlled for in the models, the differences in the likelihood of having an RPP are no longer significant between borrowers and non-borrowers (Table 3). On the other hand, level of education is a significant factor associated with the likelihood of having an RPP. Model 1 shows that those with a non-university postsecondary certificate have a lower predicted probability of having an RPP when compared with those holding a bachelor's degree (36% versus 42%). Similarly, Model 2 indicates those who did not graduate from high school are less likely to have RPP than non-finishers with some postsecondary education (24% versus 34%).

Overall then, the probability of having an RPP increases with education, but does not differ significantly between borrowers and non-borrowers.

Student loan borrowers with PSE less likely to be homeowners than other graduates

Home ownership is a long-term investment and is the largest asset for many younger adults. In 2007, 71% of borrowers with PSE were homeowners, just below the rate for non-borrowers with PSE (74%) (Chart E).²⁵ The proportion

Table 2 Probability of receiving investment income

	Model 1 with PSE ¹		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	0.093	52	-0.615	35
Student loan status (ref. non-borrower)				
Borrower	-0.396*	42	-0.035	34
Highest education level (ref. some postsecondary)				
Some high school	...	...	-0.488*	25
High school graduate	...	...	-0.026	33
(ref. bachelor's degree)				
Non-university postsecondary	-0.721*	35	...	...
Graduate degree	0.223	58	...	...

* significantly different from the reference group (ref.) at the 0.05 level

1. Postsecondary education.

Note: Sample size of Model 1 is 9,118 observations representing almost 5.5 million weighted individuals. Model 2 is 6,121 observations representing over 3.6 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2002 to 2007.

Table 3 Probability of having a registered pension plan

	Model 1 with PSE ¹		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	-0.315	42	-0.675	34
Student loan status (ref. non-borrower)				
Borrower	0.102	45	-0.025	35
Highest education level (ref. some postsecondary)				
Some high school	...	...	-0.531*	24
High school graduate	...	...	-0.059	34
(ref. bachelor's degree)				
Non-university postsecondary	-0.266*	36	...	...
Graduate degree	-0.238	37	...	...

* significantly different from the reference group (ref.) at the 0.05 level

1. Postsecondary education.

Note: Sample size of Model 1 is 8,606 observations representing almost 5.1 million weighted individuals. Model 2 is 5,283 observations representing over 3 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2002 to 2007.

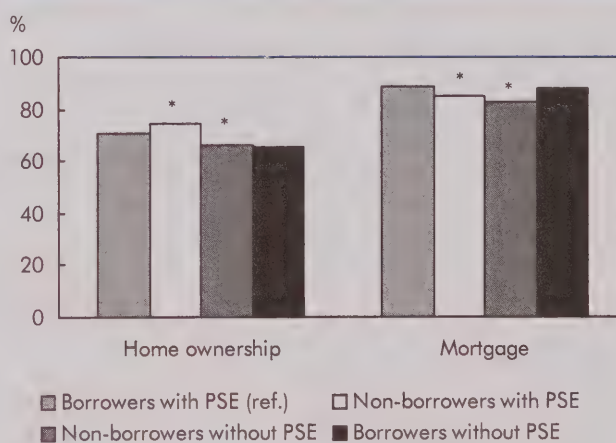
of homeowners among non-borrowers without PSE (66%) is significantly lower than borrowers with PSE, but not significantly different from borrowers without PSE (65%).

Similar results were found when controlling for other related factors using the logit model.²⁶ In the PSE model, the probability of being a homeowner for borrowers is significantly lower than for non-borrowers (53% versus 60%) (Table 4). A similar gap between borrowers and non-borrowers is estimated in the non-PSE model, but is not statistically significant. Similar to the previous models, educational attainment is positively and significantly associated with the likelihood of home ownership.

While home ownership may suggest an accumulation of assets, most homes are financed through mortgages. Given home ownership, are student loan borrowers more or less likely to have repaid their mortgage compared to non-borrowers? Given the age group of the target population (20 to 45), the majority of homeowners had a mortgage in 2007. Overall, student loan borrowers, both with and without PSE, had the highest proportion of homeowners with a mortgage (88%) (Chart E). And although non-borrowers without PSE

were one of the least likely to own their homes, they were also the least likely to have a mortgage (82%). Results from logit models²⁷ estimating the probability of homeowners having a mortgage for those with PSE indicate that borrowers were significantly more likely to have a mortgage than non-borrowers (Table 5). However, the actual difference in the predicted probability of having a mortgage between borrowers and non-borrowers was quite small (2 percentage points). Mortgage holding in the non-PSE group did not differ significantly between borrowers and non-borrowers.

Overall, the results show that borrowers with PSE are less likely to own their homes, and when they do, are slightly more likely to have

Chart E Home ownership and presence of mortgage

* significantly different from the reference group (ref.) at the 0.05 level

Note: Sample size is 13,631 observations representing over 7.9 million individuals age 20 to 45 who were not students in 2007.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

Table 4 Probability of owning a home

	Model 1 with PSE ¹		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	0.417	60	0.924	72
Student loan status (ref. non-borrower)				
Borrower	-0.307*	53	-0.358	64
Highest education level (ref. some postsecondary)				
Some high school	...	...	-0.641*	57
High school graduate	...	...	-0.268	66
(ref. bachelor's degree)				
Non-university postsecondary	-0.355*	52	...	...
Graduate degree	-0.288	53	...	...

* significantly different from the reference group (ref.) at the 0.05 level

1. Postsecondary education.

Note: Sample size of Model 1 is 8,476 observations representing over 4.9 million weighted individuals. Model 2 is 5,140 observations representing almost 3 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

loan borrowers and non-borrowers. The target population here is restricted to those age 20 to 29 in order to minimize selection bias (see *Data sources and definitions*). In general, student loan borrowers with a postsecondary education are not statistically different in their average total debts but have lower average assets and net worth than their non-borrowing counterparts. The average amount of assets of borrowers with PSE is \$60,700 compared to \$106,300 for non-borrowers with PSE (Table 6). With similar debt levels between student loan borrowers and non-borrowers with PSE, the overall average net worth of student loan borrowers with PSE is significantly lower than that for non-borrowers with PSE (\$17,500 and \$61,900 respectively).

a mortgage compared to non-borrowers with PSE. Since most mortgages are based on the debt service capacity of the applicant, student loan debt may well impede the home purchase decision for some borrowers. Given home ownership, borrowers still making student loan payments will have fewer resources available to pay down their mortgages. On the other hand, those without PSE, whether they are borrowers or not, show no statistical difference in their probability of owning their homes and having a mortgage.

Wealth of student loan borrowers significantly below their non-borrowing counterparts

The 2005 Survey of Financial Security enables an examination of the overall wealth levels of student

Table 5 Probability of having a mortgage

	Model 1 with PSE ¹		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	2.419	92	2.326	91
Student loan status (ref. non-borrower)				
Borrower	0.335*	94	0.460	94
Highest education level (ref. some postsecondary)				
Some high school	...	...	0.091	92
High school graduate	...	...	0.138	92
(ref. bachelor's degree)				
Non-university postsecondary	0.101	93	...	...
Graduate degree	-0.514*	87	...	...

* significantly different from the reference group (ref.) at the 0.05 level

1. Postsecondary education.

Note: Sample size of Model 1 is 6,683 observations representing over 3.7 million weighted individuals. Model 2 is 3,559 observations representing over 2 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

Data sources and definitions

The **National Graduates Survey** (NGS) examines the labour market experiences of graduates from Canadian public postsecondary institutions such as universities, CEGEPs, community colleges and trade/vocational programs. The survey focuses on employment, type of occupation and the relationship between jobs and education. The target population of the NGS consists of all graduates from a recognized public postsecondary Canadian institution who completed the requirements of an admissible program or obtained a diploma some time in 2005, and who were living in Canada or the United States at the time of the survey (with the exception of American citizens living in the United States at the time of the survey). To date, six graduating classes have been surveyed: 1982, 1986, 1990, 1995, 2000 and 2005. This study compares the results from the classes of 1995 and 2005.

The **Survey of Labour and Income Dynamics** (SLID) is a longitudinal survey composed of six-year panels with a cross-sectional component. A new panel is introduced every three years, so two panels always overlap. Each panel consists of roughly 15,000 households—about 30,000 adults—and covers all individuals in the 10 provinces, excluding persons living on Indian reserves and residents of institutions. This study mainly uses the 2007 cross-sectional component of SLID.³⁰ All data presented are weighted³¹ and bootstrap weights are used for significance testing. In 2005, SLID started providing information on individuals' student loan status. Specifically, all respondents are asked whether they ever received a student loan. If the answer is 'yes' then they are asked the total amount borrowed and the current amount owing. The student loan questions were only asked of respondents age 16 to 45. Since a very small percentage of respondents under the age of 20 had finished their postsecondary education, only those age 20 to 45 were included in the analysis presented in this section. In addition, respondents who reported attending school either full time or part time in 2007 were excluded since the objective of this paper is to examine the financial position of non-students.

The **Survey of Financial Security** (SFS) collects information from 9,000 households on their income, education, employment, assets, debts, as well as student loans. It thus provides information on the net worth (wealth) of Canadian families. Excluded are those living on Indian reserves and crown lands, residents of the territories, members of religious and other communal colonies, members of the Armed Forces living in military camps, and those living in institutions and residences for seniors.

This study uses the 2005 cycle of the SFS. A limitation of the SFS for this study is that it only screens in student loan respondents who reported outstanding debt on their student loans in the reference year. Therefore, individuals who had previously paid off their student loans would be incorrectly categorized as not having had a student loan and would have been screened out of the student loan questions. Those who had previously paid off their student loans are also likely to be more financially well-off, which potentially leads to a selection effect. In order to minimize this selection effect, only respondents age 20 to 29 who were the major income earner or the spouse/common-law partner were included in this section.³²

The **target population** for student loan borrowers varied for this study depending on the survey. For contextual information and recent trends, the analysis using the 1995 and 2005 NGS included all respondents in the survey (graduates from the classes of 1995 and 2005), regardless of age. The total sam-

ple for the 1995 NGS is approximately 43,000 respondents, representing almost 300,000 graduates. For the 2005 NGS, the total sample is approximately 39,600, representing more than 350,000 graduates. The target population using SLID included those age 20 to 45 in 2007, since those over the age of 45 are not asked the student loan questions. The sample in SLID is approximately 15,300 respondents, representing over 9 million individuals. Finally, the analysis using the SFS included only those age 20 to 29 in 2005 to minimize selection bias. The total sample is about 500 respondents, representing almost 1.7 million individuals.

Investment income is used as a proxy for savings and investments. SLID defines investment income to include actual amount of dividends (not taxable amount), interest, and other investment income, like net partnership income and net rental income.

Total assets include

- Total non-pension financial assets;
- Subtotal of non-financial assets (principal residence, other real estate and other non-financial assets);
- Total of asset value of pension, major retirement funds and less common retirement savings instruments;³³
- Accumulation of value of all businesses operated by the family unit.

Total debts include

- Mortgage on principal residence, final value;
- Mortgages on other real estate in Canada and the mortgage associated with the non-farmhouse portion of the principal residence if it is a farm;
- Accumulation of debt value of mortgages on real estate outside Canada;
- Accumulation of debt value of major credit cards;
- Accumulation of debt value of other credit cards;
- Accumulation of debt value of other deferred payment and instalment plans;
- Accumulation of debt value of student loans;
- Accumulation of debt value of car, truck and van loans;
- Accumulation of debt value of other vehicle loans;
- Accumulation of debt value of home equity line of credit;
- Accumulation of debt value of other than home equity line of credit;
- Accumulation of debt value of other loans from financial institutions;
- Accumulation of debt value of other money owed.

Some postsecondary includes university and non-university postsecondary.

Bachelor's degree includes bachelor's degree and university diploma or certificate above bachelor's and below master's.

Non-university postsecondary includes non-university postsecondary certificate and university certificate below bachelor's degree.

Graduate degree includes master's degree, degree in medicine, dentistry, veterinary medicine, optometry or first professional degree in law, and doctorate.

Table 6 Average total assets, debts and net worth

	Total assets	Total debts	Net worth
	Estimated coefficient (\$)		
Student loans with PSE ¹ (ref.)	60,700	43,300	17,500
No student loans with PSE	106,300*	44,400	61,900*
No student loans without PSE	52,000	24,000*	28,000
Student loans without PSE	36,000	38,800	-2,700*

* significantly different from the reference group (ref.) at the 0.05 level

1. Postsecondary education.

Note: Sample size is 533 observations representing over 1.8 million weighted counts. Total assets, debts, and net worth are related to the family unit where the major income earner in the family was between the ages of 20 and 29 in 2005.

Source: Statistics Canada, Survey of Financial Security, 2005.

The results of a linear model,²⁸ which controls for other factors²⁹ affecting net worth, supports these results. While the two non-PSE groups are not significantly different from borrowers with PSE, non-borrowers with PSE have significantly higher estimated net worth (Table 7). Non-borrowers with PSE have, on average, \$39,200 more in net worth than borrowers with PSE.

Leaving school with debt will understandably slow down the initial accumulation of wealth, but the reward of higher education will often pay off over the long term. Nevertheless, deeper debt is likely to extend the turnaround period in which student loan borrowers are able to start accumulating wealth.

Summary

With increasing postsecondary education costs, more students are relying on student loans to help finance their postsecondary education. Between 1995 and 2005, the student borrowing rate among graduates increased from 49% to 57%, as did the average debt from

Table 7 Results of linear model for net worth

	Estimated coefficient (\$)
Intercept	59,400
Student loans (ref. loans with PSE ¹)	
No loan with PSE	39,200*
No loan without PSE	13,200
Loan without PSE	-21,400
Age	
Centred at 25	3,000*
Centred square	1,100
Women (ref. men)	-19,300*
Marital status (ref. married)	
Separated, divorced, widowed	F
Single, never married	-43,800*

* significantly different from the reference group (ref.) at the 0.05 level

1. Postsecondary education.

Note: Other variables included in the model but not reported as they are not statistically significant include province of residence, area size of residence, mother tongue, activity limitation, major activity, and occupation. Sample size is 532 observations representing over 1.8 million individuals age 20 to 29 in 2005. Total assets, debts, and net worth are related to the family unit where the major income earner in the family was between the ages of 20 and 29 in 2005.

Source: Statistics Canada, Survey of Financial Security, 2005.

student loans (\$15,200 and \$18,800). A small but growing proportion of borrowers are graduating with debt loads of \$25,000 or more.

Among postsecondary graduates, borrowers did not differ significantly from non-borrowers with PSE in terms of employment rates, total personal income and likelihood of having an RPP. But borrowers were less likely to have savings and investments, or own their homes. Among graduates age 20 to 29, total debt was similar for borrowers and non-borrowers—not surprising since their capacity to service debt, as evidenced by total income, was nearly equal. On the other hand, borrowers with PSE have, on average, lower assets and correspondingly lower net worth than non-borrowers with PSE.

The study also examined the small population who had accumulated student debt during an incomplete course of postsecondary study. Although many of the results for this group were imprecise due to the small sample size, the average net worth of borrowers without PSE was significantly lower when compared with other borrowers with PSE.

The results suggest that while student debt continues to affect individuals' finances for years after graduation, borrowers who complete their postsecondary education are receiving similar labour market returns to their education as non-borrowers. Moreover, both groups of graduates fare much better in the labour market compared to those with less education—including those with partial postsecondary studies.

Table 8 Recent trends in student loans, classes of 1995 and 2005

	1995 (ref.)				2005		
	Both sexes ¹	Men	Women		Both sexes	Men	Women
Population of graduates²	298.2	129.3	168.6	'000	354.2	148.9*	205.3*
Graduates	100	43	57	%	100*	42*	58*
With student loan from any source	49	49	49		57*	55*	58*
Borrowers							
with only government student loan	67	65	68		52*	49*	55*
with only loan from other sources	14	15	13		22*	24*	20*
with student loan from government and other sources	20	21	19		26*	27*	26*
Repaid government student loan by graduation	8	8	9		17*	17*	17*
Average government student debt at graduation ³	14,700	14,100	15,100	\$	16,600*	16,100*	17,000*
Average student debt from all sources ^{3,4}	15,200	14,800	15,400		18,800*	18,600*	19,000*
Owing \$25,000 or more ⁵	17	16	17	%	27*	26*	27*
Owing \$50,000 or more ⁵	2	2	2		6*	5*	6*
Average years expected to repay student loan	7.2	6.6	7.6	years	7.4	7.1*	7.5
Expected to take more than 10 years to repay loan	18	13	22	%	20	18*	21

* significantly different from the reference group (1995) at the 0.05 level

1. Some 248 weighted respondents had missing values for their gender.

2. The population in the NGS includes graduates from Canadian postsecondary institutions. This study examines graduates from the classes of 1995 and 2005.

3. Average estimates of student debt at graduation exclude those who reported "don't know, refusal, or not applicable."

4. The average amount of student debt from all sources is likely underestimated for 1995 as the variable for the amount of loan owing from other sources at graduation is not available for 1995. Instead, the amount of loan owing from other sources now (two years after graduation) is used. Since some students may have fully repaid or reduced the amount owed to other sources within the two-year period, this number would likely be underestimated, which means the difference between the 1995 and 2005 amounts is likely overestimated.

5. Proportion owing estimated at graduation and for those who had positive and non-zero student debts.

Source: Statistics Canada, National Graduates Survey, 1995 and 2005.

■ Notes

1. While Chart A represents the average tuition fees across all provinces in Canada, Quebec tuition fees have been frozen since the late 1990s and are currently less than one-half the national average.
2. Consolidated Government Revenue and Expenditure. The remaining proportion of government revenues comes from other sales of goods and services, investment income, and other sources of revenue.

3. Frenette (2007) found that only 12% of the total gap in university attendance between youth from the top and bottom income quartiles is related to financial constraints.
4. Grants and bursaries are also another option. Grants and bursaries in effect during the period from 1995 to 2005 include the Millennium Bursary Program, the Millennium Access Bursary Program, and the Canada Access Grant for Students from Low-income Families. However, a detailed analysis of the grants and bursaries programs is beyond the scope of this study.

5. Includes money borrowed from the government-sponsored student loans program, banks and institutions, and parents or other relatives.
6. See Table 8 for statistics broken down by sex. Overall, means and proportions by sex were not much different from the overall numbers.
7. Only borrowers who had a positive loan amount were included in estimating the average, while those who had paid back their loans in full were excluded. In 1995, 8% of student loan borrowers from the government-sponsored program had repaid their loans in full prior to graduation. This proportion increased to 17% in 2005.
8. Unless otherwise stated, all dollar values in this study are in 2007 constant dollars.
9. The combined 1995 figure is likely underestimated as the NGS only asked about the amount that respondents owed to other sources at the time of the survey, which was two years after graduation. Therefore, it is likely that some of the loans had been paid down during this time. Nevertheless, the combined 2005 figure does reflect the amount owed at the time of graduation, which indicates that loan amounts from other sources make up a considerable portion of the total student loan amount.
10. The average tuition fee in 2007 constant dollars from all postsecondary programs is used. This is to keep the comparison to borrowing levels consistent since average borrowing amounts also include all postsecondary programs.
11. As previously noted, the amount of student loans from other sources upon graduation is not available for 1995. Therefore, this figure may be underestimated.
12. All values are calculated in 2007 constant dollars.
13. The CSLP considers a borrower to have defaulted when the loan is in arrears for more than 270 days (about 9 months of payments).
14. Approximately 16% of the sample reported being self-employed in 2007. Only borrowers without PSE were significantly less likely to be self-employed when compared with the reference group of borrowers with PSE (12% versus 17%).
15. The proportion of full-time workers in 2007 was between 88% and 89% for all groups.
16. The sample for this model excludes those who were not employed full year. Those who worked part year were included. The model controls for student loan status, education, age group, full-year full-time experience, marital status, family characteristics, immigrant status, visible minority status, disability status, parental education, province, area size of residence, and occupation.
17. Models for annual earnings were also estimated and results were similar to the income models. Total income models are presented since they include returns to capital which might differ between non-borrowers and borrowers (who are assumed to be more credit-constrained).
18. Ratios were calculated using the post-estimation e-form option in STATA. Specifically, it takes the form of $\exp(\beta)$ to calculate the ratio between a dummy variable and its reference category.
19. Individuals are considered to have savings or investments if they reported investment income that includes actual amount of dividends (not taxable amount), interest, and other investment income, like net partnership income and net rental income. Since investments may not yield a return every year, in order to minimize incorrectly categorizing individuals who may have made investments but did not receive a return, a respondent is flagged to have investment income if he or she received investment income for any year between 2002 and 2007.
20. All means and proportions are age standardized.
21. Factors controlled for include age, education, number of years of full-year full-time experience, marital status, family characteristics, immigrant status, visible minority status, gender, parental education, province and area size of residence, and occupation.
22. It is possible that those in the older age groups of the sample (35 to 45) have a higher likelihood of receiving income from inheritance which may give them more opportunities to invest and/or save. To see if this is the case, the model was rerun excluding those age 35 to 45. The results did not indicate any substantial differences between the full model and the restricted model, suggesting that inheritance income was not a major contributor to the likelihood of having investment income.
23. Respondents are categorized as having an RPP if they made any RPP contributions between 2002 and 2007.
24. Factors controlled for include age, education, number of years of full-year full-time experience, marital status, family characteristics, immigrant status, visible minority status, gender, parental education, province and area size of residence, and occupation.
25. SLID asks whether the dwelling is owned by a member of the household. In order to increase the likelihood that the dwelling is owned by the respondent, only those who reported themselves to be the major income earner or the spouse/partner are included in this section. Those excluded represent 11% of the sample.
26. Factors controlled for include age, years since last degree or certificate was completed, marital status, family characteristics, immigrant status, visible minority status,

gender, parental education, province and area size of residence, occupation, and average annual total income before tax and its square to allow for a nonlinear relationship.

27. Factors controlled for include age, years since last degree or certificate was completed, marital status, whether the respondent was living with children or parents, immigrant status, visible minority status, gender, parental education, province and area size of residence, occupation and income.
28. Because of a large number of records with negative values, a linear model is used rather than a log-linear model (see *Models*).
29. Variables with a significant effect on net worth include age, sex and marital status. Other variables that are also in the model but not reported as they are not statistically significant include province, area size, occupation, mother tongue, activity limitation, and major activity.
30. The longitudinal component is used in rare incidences like when the proportion of individuals who made contributions to an RPP between 2002 and 2007 was calculated.
31. The survey weight ILBWT26 is used.
32. According to SLID, only 26% of respondents age 20 to 29 had paid off their student loans in 2005. In addition, the average student loan for those within this age range and who had repaid their loans was only \$8,600, compared to \$14,500 for those who had not repaid their loans.
33. These include RRSPs, LIRAs and RRIFs, current pensions, deferred pensions and pensions in pay, deferred profit-sharing plans, executive and foreign pension plans, and annuities. Current pension plans in this subtotal are valued on termination basis.

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Employer top-ups

Katherine Marshall

Although 'priceless' in many ways, there are financial costs to having children. One factor is earnings lost from employment absences after childbirth. Most mothers are employed before birth and most of those receive benefits from either the federal or Quebec maternity and parental leave programs. However, since these benefits replace only a proportion of insurable earnings—up to 75% in Quebec and 55% outside Quebec—most households experience a reduction in household income during the work absence (see *EI and QPIP*).

The costs of parental leave can go beyond short-term income losses. Birth-related employment absences may result in missed training opportunities, promotions and the accumulation of work experience, which might explain some of the persistent earnings gap between women with and without children. Long career interruptions of three or more years have been shown to be a significant factor linked to the "motherhood earnings gap" (Zhang 2009).

To compensate for earnings lost by employees on leave, some employers provide parents with a Supplemental Unemployment Benefit (SUB), also known as a top-up. The SUB is a government initiative that employers use as a means of reducing the net earnings loss of their employees on leave (see *The SUB Program*). Employer top-ups are only available to those already entitled to Employment Insurance/Quebec Parental Insurance Plan (EI/QPIP) benefits. Payments cover some or all of the difference between what parents receive from EI/QPIP and their regular earnings. The earnings replacement rate, duration of payment and coverage (mothers, fathers and adoptive parents) vary among companies. Top-ups could also indirectly enhance long-term earnings since they often stipulate a return to employment within a specified time, thus encouraging job continuity.

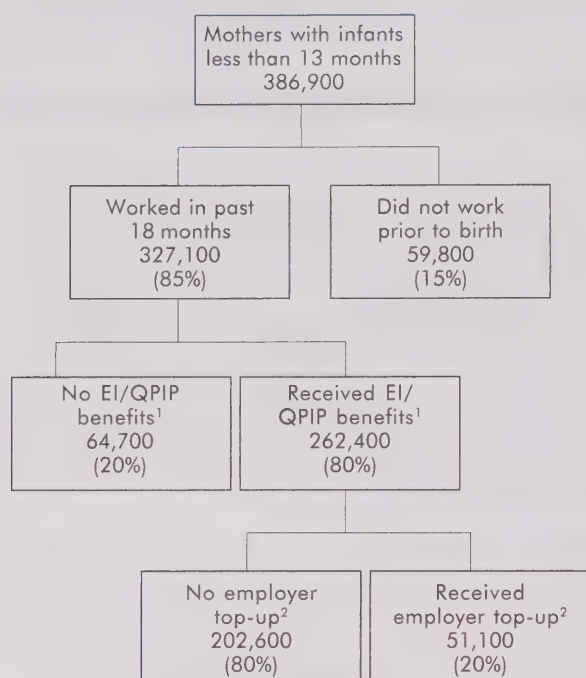
By providing a higher level of overall earnings replacement, employer top-ups may enable more parents to remain on leave for a longer period. EI maternity and parental benefits comprise a core element of the National Children's Agenda designed to help parents better manage the demands of employment and infant care (HRSDC 2005). Starting in January 2001, EI shareable parental benefits increased from 10 to 35 weeks. It is unclear whether employer top-up plans have expanded to the same degree as the public benefit programs.

Although top-ups have become a well-known discretionary employer benefit, little is known about which employees are covered. Findings from *Canada's Top 100 Employers* suggest "there has been a distinct surge in the availability of parental leave top-up payments, particularly for adoptive parents and fathers" (Yerema 2007). This study uses the Employment Insurance Coverage Survey (EICS) to examine first-time information on the trends in the proportion of mothers with a paid job who receive a maternity or parental leave benefit top-up from their employers.² By way of descriptive and regression analysis, it also addresses the question of who is likely to receive an employer top-up and whether that receipt influences the rate of returning to work, average time off, and rate of return to the previous employer (see *Data source and definitions*).

One in five mothers has an EI/QPIP employer top-up benefit

Of all new mothers in 2008, 327,000 (85%) were employed before giving birth (Chart A). Of this group, 262,000 (80%) reported receiving paid maternity and/or parental leave benefits (EI/QPIP), and 51,000 received an employer top-up to these benefits—representing one in five EI/QPIP beneficiaries.³ In

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Chart A Financial compensation of new mothers in 2008

1. Federal- or Quebec-paid maternity or parental leave; includes the self-employed.

2. Excludes the self-employed and unpaid family workers.

Source: Statistics Canada, Employment Insurance Coverage Survey.

2008, top-ups lasted for an average of 19 weeks with average payments of \$300 per week, such that employers collectively paid out more than \$290 million towards supplementary benefits for mothers (Table 1).

From 2000 to 2006, approximately three-quarters of previously employed mothers were in receipt of EI/QPIP benefits after birth. Those without benefits during this period included the self-employed, those without enough insurable hours of employment, and those who did not apply. With the introduction of QPIP in 2006 and the subsequent inclusion of the self-employed along with the more lenient qualifying rules, the benefit coverage rate of mothers in Quebec rose to 9 in 10 for 2007 and 2008, which also pushed up the overall national coverage rate.

The SUB Program

The federal Supplemental Unemployment Benefit (SUB) Program was introduced in 1956 with the goal of subsidizing employees with Employment Insurance (EI) benefits while they were temporarily laid-off. With EI replacing only 55% of previous earnings, a SUB payment helps to further reduce the net loss of earnings. Under the current program, employers are encouraged to create and register SUB plans that cover not only temporary work stoppages, but training, illness and injury or quarantine. Registered plans must meet the requirements of article 37 of the *Employment Insurance Regulations* set by Service Canada (Service Canada 2009). The program helps increase employees' level of earnings replacement during work absences, but the payments are not counted as insurable and as such EI benefits are not reduced. Employers are meant to gain from this program since employees are enticed to return to the same employer, which helps retain experienced employees and reduce retraining or new hiring. Financing of the plans is the sole responsibility of the employer. At the end of 2008, roughly 3,000 employers had approved SUB plans covering more than 885,000 employees (Service Canada 2008).

SUB plans can also supplement EI or QPIP maternity or parental benefits and EI compassionate care benefits, but they do not need to be registered. Although employers with maternity and parental leave SUB plans, also known as 'top-ups,' do not have to obtain formal approval from Human Resources and Skills Development Canada, records must be kept and two conditions regarding the supplementary payments must be met. First, top-ups must not exceed an employee's normal weekly earnings, and second, the payment must not reduce other accumulated employment benefits such as banked sick leave, vacation leave, or severance pay.¹

A study of the maternity and parental leave SUB plans found in major collective agreements, including those covering more than 200 employees in sectors under federal jurisdiction or more than 500 employees under provincial jurisdiction, indicates that most have a number of standard conditions. For example, most plans restrict top-up payments to employees with a minimum number of weeks or months of service, employees must prove they are eligible for EI/QPIP benefits, and coverage is usually offered to full-time regular staff only (HRSDC 2007). Furthermore, most employees must sign an agreement committing to returning to work within a set period of time and for a minimum period of time and acknowledge that failure to do so results in their indebtedness to the company for the amount of benefit received. A 93% income replacement rate of combined EI/QPIP benefits and top-up payments is assumed to equal the usual full salary, due to tax and other advantages. However, the agreements offer a range of different replacement rates, and the offered number of weeks of top-up payments is even more variable (Ibid.).

Among EI/QPIP benefit recipients, the proportion also receiving an employer top-up (around 1 in 5) has remained stable over the nine-year period, as has the average duration of the top-up benefit payments (around 18 weeks). Although parental leave benefits

Table 1 Receipt of paid maternity and parental leave benefits and employer top-ups among previously employed mothers

	2000	2001	2002	2003	2004	2005	2006	2007	2008
All mothers with infants less than 13 months	231	252	278	274	292	328	311	322	327
					'000				
Receipt of EI/QPIP benefits¹					%				
Total	73	75	74	77	79	74	75	78	80
Quebec	F	F	79	80	78	73	83	93	90
Outside Quebec	F	F	72	76	79	74	72*	72*	76*
Receipt of top-up for those with EI/QPIP²									
Total	20	17	18	19	19	27	16	24	20
Quebec	F	F	F	24	F	32	25 ^E	27 ^E	28
Outside Quebec	F	F	18	17	19	25	13*	22	17*
Average weeks of top-up					weeks				
Total	16	17	18	17	17	18	16	18	19
Quebec	F	F	F	19	F	19	17	17	22
Outside Quebec	F	F	18	16	16	18	16	19	18
Average top-up payment³	F	F	F	F	per week (current \$)	270	320	260	330
									300

* significantly different with Quebec at the 0.05 level; tests done for 2004/2008 as bootstrap weights available for these years, allowing for a more accurate calculation of standard errors

1. Federal Employment Insurance or Quebec Parental Insurance.

2. Excludes the self-employed.

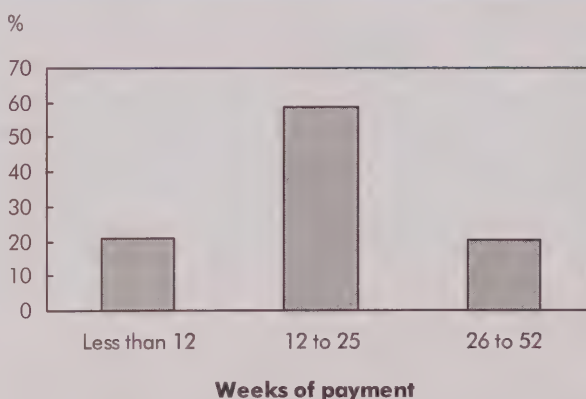
3. Based on valid responses of \$800 or less; the variable contains a high percentage of 'not stated.'

Source: Statistics Canada, Employment Insurance Coverage Survey.

increased from 10 to 35 weeks starting in 2001, there was no corresponding increase in the duration of top-ups. Many employers may not top-up extended parental leave benefits because of the cost or terms imbedded in collective bargaining agreements (HRSDC 2007).

The top-up payment period averaged between 16 and 19 weeks,⁴ or about four months, suggesting that most women receive a top-up to their paid maternity leave only: 15 weeks for women outside Quebec and 18 weeks for women in Quebec (as of January 1, 2006). Some companies also cover the two-week waiting period: "...a number of collective agreements also stipulate that the employer will provide employees on maternity leave with an allowance to offset the two-week waiting period for EI benefits" (Ibid. 2007).

Most mothers, 80% in 2008, reported receiving payments for less than six months—further evidence that most top-up benefits do not cover the entire paid leave period (Chart B). However, as will be shown,

Chart B Most mothers with an employer top-up receive benefits for under six months

Source: Statistics Canada, Employment Insurance Coverage Survey, 2008.

most new mothers eligible for EI/QPIP benefits are on leave for almost one year. Therefore, with only a minority of women receiving top-up payments for six months or longer, the reality is that relatively few mothers are on paid leave with full earnings replacement—EI/QPIP plus an employer top-up—for the duration of their time off.

One-half of public sector employees are in receipt of an employer top-up

More mothers with paid jobs in Quebec reported having an employer top-up to their EI/QPIP benefits in 2008 than did mothers outside Quebec—28% versus 17% (Table 2). When several employer attributes are controlled for in a logistic regression model—such as firm size, sector and rate of unionization—Quebec employees are 2.7 times more likely to receive a maternity or parental leave top-up from their employers than are those living elsewhere. Research has shown that Quebec was one of the first provinces to include paid maternity leave in collective agreements. Also, the first major SUB plan for maternity leave was implemented in 1979 in Quebec by a group of public sector unions (Moloney 1989).

With a top-up rate of 39%, working in a unionized job appears to be strongly associated with this employer benefit. However, regression results indicate that unionization is not a key factor. Two workplace characteristics that do significantly increase the chances of receiving a top-up include working for a larger versus smaller company, and working in the public versus the private sector. Large companies of over 500 employees, whether unionized or not, often have the human and financial resources to use incentives, such as top-up plans and other discretionary benefits, to recruit and retain employees. Not only do larger companies have a greater ability to oversee and pay for such benefits, but their large workforce also allows for savings through economies of scale. “By spreading liability over a large number of participants, premiums are lower. Larger firms need more people and, especially in labor-short boom times, need incentives to recruit. They also tend to have more employees who are covered by collective bargaining contracts” (Social.jrank 2009).

Since the SUB Program is a government-initiated program, public sector workplaces are more likely to participate. The public sector includes, for example, employees in all levels of public administration, Crown corporations, public schools, universities, and hospi-

Table 2 Personal and job characteristics of mothers with paid jobs in receipt of an employer top-up to their maternity or parental benefits

	Mothers with EI/QPIP ¹	Received top-up	Odds ratios ²
	'000	%	
All mothers³	254	20	...
Province of residence			
Quebec	74	28	2.7**
Outside Quebec (ref.)	180	17	1.0
Education			
University degree	85	30	n.s.
Less than university degree (ref.)	169	15	1.0
Union status			
Unionized (ref.)	86	39	1.0
Non-unionized	168	11	n.s.
Job tenure			
Less than 3 years (ref.)	106	11	1.0
3 to 5 years	64	22	n.s.
6 years or more	81	31	n.s.
Size of company			
1 to 500 employees (ref.)	93	10	1.0
Over 500 employees	118	35	2.9***
Unknown	43	F	n.s.
Sector			
Public	81	48	5.7***
Private (ref.)	154	8	1.0
Unknown	19	F	n.s.
Hourly earnings			
Less than \$20.00 (ref.)	137	9	1.0
\$20.00 to \$24.99	43	30	2.7*
\$25.00 or more	71	36	2.3*

1. Employment Insurance or Quebec Parental Insurance benefits.

2. This regression calculation indicates whether certain variables significantly increase or decrease the odds of having an employer top-up, n.s. not significantly different from reference group (1.0), * significant at the 0.05 level, ** at the 0.01 level and *** at the 0.001 level.

3. Individual variable categories may not add to the total due to non-response.

Source: Statistics Canada, Employment Insurance Coverage Survey, 2008.

tals (see *Data source and definitions*). One in two mothers (48%) working in the public sector received an employer top-up to their EI/QPIP benefits—making them 5.7 times more likely to do so than their counterparts in the private sector. While one-quarter of public sector employees are not unionized, 40% of this group still received a top-up.

Data source and definitions

The Employment Insurance Coverage Survey (EICS), a supplement to the Labour Force Survey, is conducted four times per year and collects information about coverage under the Employment Insurance (EI) program. In 2000, women at home with infants under 13 months began being interviewed regarding access to maternity, parental and adoption benefits. Questions in this section relate to additional payments from employers, private insurance or other benefits while mothers are on leave from a job following the birth of a child. Respondents are asked to report on the number of weeks payments were received and the payment amounts. It is not possible to determine the percentage of total weekly earnings replaced by the payments. More than one-quarter of respondents did not know the amount they received. Finally, outliers with values of more than \$800 per week were excluded from the calculations (representing 1% of records in 2008).

The **target population** for this article includes all mothers with children age 0 to 12 months. In 2008, approximately 1,250 mothers were interviewed, representing a weighted count of 387,000.

The **firm size** refers to the total number of employees found at all locations of the mother's employer.

The **public sector** refers to those employed in federal, provincial or municipal public administration, Crown corporations, liquor control boards, public primary and secondary schools, universities, hospitals and public libraries, and other government institutions. The **private sector** consists of all other employees.

A **logistic regression model** is used to examine the probability of receiving an employer top-up among all previously employed mothers with paid jobs and who were in receipt of EI/QPIP benefits. Bootstrap estimation techniques were employed to adjust for the complex sampling design of the survey.

Finally, having a wage of at least \$20 per hour significantly increases the likelihood of receiving an employer top-up compared with those with lower wages. The top-up rate among those earning less than \$20 was 9%, compared with 30% for those with a \$20 to \$24.99 hourly wage, and 36% for those who earn \$25 per hour or more. Those with high earnings are more likely to be in professional or skilled jobs and are more costly to replace for companies. Employers use various forms of non-wage compensation to recruit and retain employees—and top-ups may be one such benefit. Other research indicates that higher quality jobs are associated with both better wages and better benefits (Marshall

2003a). Conversely, those with low wages are the least likely to receive supplementary benefits.

Duration of payments similar for most employees

Although women in Quebec are more likely to receive an employer top-up than those in other provinces, the duration of payments is not significantly longer—22 versus 18 weeks, respectively (Table 3). The only job characteristic to have a strong significant influence on the number of weeks of top-up payments received is the sector of employment. Mothers employed in the public sector received payments for an average of 22 weeks compared with 12 weeks for those in

the private sector. This is further indication that employer top-ups are a common and substantial benefit mainly for public sector employees.

Almost all women with top-ups return to work and to the same employer

Most employers offering a top-up do so on condition that the mother return to her job within a fixed period of time and remain with the employer for a period of time or

Table 3 Average weeks of payments for mothers with employer top-ups

	Weeks
All mothers	19
Province of residence	
Quebec (ref.)	22
Outside Quebec	18
Education	
University degree (ref.)	21
Less than university degree	18
Union status	
Unionized (ref.)	21
Non-unionized	16
Job tenure	
Less than 3 years (ref.)	17
3 to 5 years	17
6 years or more	22*
Size of company	
1 to 500 employees (ref.)	18
Over 500 employees	20
Sector	
Public (ref.)	22***
Private	12
Hourly earnings	
Less than \$20.00 (ref.)	20
\$20.00 to \$24.99	18
\$25.00 or more	20

* significantly different from the reference group (ref.) at the 0.05 level, *** at the 0.001 level

Source: Statistics Canada, Employment Insurance Coverage Survey, 2008.

EI and QPIP

Starting in January 2006, the Quebec Parental Insurance Plan (QPIP) replaced the federal Employment Insurance (EI) program for the administration of paid benefits associated with birth or adoption for parents in Quebec. Below is a summary of the benefits and rules for the two programs in 2009. More detailed information on the two programs can be found on the respective government websites (<http://www.rqap.gouv.qc.ca/> and <http://www.servicecanada.gc.ca/>).

EI	QPIP (basic plan) ¹
Birth mothers	Birth mothers
<ul style="list-style-type: none"> ■ 15 weeks of maternity leave ■ 55% of average earnings up to a maximum of \$42,300 in 2009 (\$447 per week) ■ Two-week waiting period ■ Requires 600 hours of paid work in past year ■ Self-employed excluded ■ Non-flexible 	<ul style="list-style-type: none"> ■ 18 weeks of maternity leave ■ 70% of average earnings up to a maximum of \$62,000 in 2009 (\$835 per week) (adjusted every year) ■ No waiting period ■ Requires at least \$2,000 of earnings in past year ■ Covers salaried and self-employed ■ Some flexibility¹
Birth fathers	Birth fathers
<ul style="list-style-type: none"> ■ Not applicable 	<ul style="list-style-type: none"> ■ 5 weeks of paternity leave
All parents (birth and adoptive)	All parents (birth and adoptive)
<ul style="list-style-type: none"> ■ 35 weeks of parental leave ■ Taken by one or shared by both parents ■ Same rules as maternity leave but no second waiting period required 	<ul style="list-style-type: none"> ■ 32 weeks parental leave for birth parents, 37 weeks parental leave for adoptive parents ■ Taken by one or shared by both parents ■ Same rules as maternity leave except for benefit rate: 7 weeks at 70%, rest at 55% for birth parents; 12 weeks at 70%, rest at 55% for adoptive parents

1. Parents can choose between the basic and the special plan. For all types of benefits (maternity, paternity, parental or adoption), the special plan offers fewer benefit weeks (15, 3, 25 and 28, respectively) at an income-replacement rate of 75%.

she must repay the benefits (see *The SUB Program*). Therefore employer top-ups act as a strong incentive for women to not only return to the paid workforce, but also to stay with the same employer. In 2008, of all mothers with a paid job before childbirth, 96% with a top-up returned to the same employer compared with 77% of mothers with EI/QPIP benefits and no top-up, and 46% of mothers without any benefits (Table 4). Furthermore, where virtually all mothers with top-ups returned or planned to return to employment within 18 months, 85% of those with EI/QPIP benefits but no top-up stated they would return to work, compared with 71% of mothers without benefits. These findings align with research show-

ing that women's labour market attachment is strongest in countries where women have access to extended paid leave programs, public day care facilities and other family support programs (Rønsen and Sundström 2002). Whether it's the risk of repayment or the desire to re-enter the labour force—women with top-ups are not only more likely to go back to work, but back to their previous jobs.

Of the mothers who had returned or planned to return to work, those with EI/QPIP benefits, with or without an employer top-up, were on leave for an average of 46 to 48 weeks. This is significantly longer than for women without paid leave benefits, who returned after an average of 34 weeks. Although longer

Table 4 Mothers with infants less than 13 months who were employed in a paid job before birth

	Mothers employed before birth	Received EI/QPIP ¹		No paid benefits
		and employer top-up benefits	and no employer top-up benefits	
All mothers	299,000	51,100	203,500	44,400
		%		
Returned or plans to return to same employer	100	100	100	100
Yes	76	96	77*	46*
No	10	F	9 ^E	25 ^E
Will not return within 18 months	15	F	15	29
		weeks		
Mothers with a spouse				
Average weeks off for returning mothers	45.5	47.8	46.3	34.3*
Average weeks claimed by fathers ²	1.9	2.6 ^E	1.6	F
Average weeks off by couple	47.4	50.3	48.0*	37.1*
		%		
Couple will claim all available EI/QPIP benefits	91	88	93	F

* significantly different from those with EI/QPIP and top-up at the 0.05 level

1. Employment Insurance or Quebec Parental Insurance benefits.

2. Averaged over all couples. The average weeks for fathers who claimed benefits was seven.

Source: Statistics Canada, Employment Insurance Coverage Survey, 2008.

leave may impose some costs for employers, the high return-to-work rate equates to positive employee retention.

An employer top-up may lessen the financial impact of childbirth, but since it generally lasts for less than six months, it may not influence the total leave time a mother takes. Most women experience some income loss while on leave since EI/QPIP replaces a maximum of 55% to 75% of previous earnings. However, this level of compensation, with or without an employer top-up, appears to enable most women to remain at home for most of the benefit period. Mothers eligible for EI/QPIP must claim and use the benefits or forfeit them. The results

suggest that the opportunity to be at home during the first year of an infant's life outweighs the net earnings loss. Indeed, among couples where at least the mother is entitled to EI/QPIP benefits, 9 in 10 report that the family will claim all benefits available—with no significant difference between those with or without an employer top-up. Of couples who do not claim all available benefits, 50% report the reason for not doing so as either work-related or their own preference to return to work.

Conclusion

With 85% of women working at a paid job before giving birth, employers must regularly manage the short-term absences of new

mothers, and, increasingly, of new fathers too. Paid maternity and parental leave programs allow parents time away from the job to care for their newborns with some level of earnings replacement. The federal Employment Insurance (EI) and Quebec Parental Insurance Plan (QPIP) programs allow parents to take up to one year of combined benefits, and under all provincial and territorial labour codes, they are guaranteed employment with their previous employer upon return to work (Baker and Milligan 2005).

With most parents in the labour force, some employers offer policies to help employees manage their work and family responsibilities.⁵ Some employers offer a Supplemental Unemployment Benefit, a plan that tops up EI/QPIP maternity benefits and, in certain instances, parental leave benefits. The program is regulated by Human Resources and Skills Development Canada but is financed by employers. Payment level and duration varies from company to company. In 2008, 1 in 5 mothers who received EI/QPIP benefits after birth also received an employer top-up. The average weekly top-up for these mothers, which lasted for an average of 19 weeks, was \$300. This implies that many employer top-ups cover only the maternity leave portion of public benefits.

Working for a public sector employer significantly increases the chances of a mother receiving a top-up and the length of the payment period: 48% of mothers in the public sector received a top-up for an average of 22 weeks compared with 8% and 12 weeks for those in the private sector. Working for a company with a staff of

more than 500, being employed in Quebec and having an hourly wage of \$20 or more were also associated with the receipt of employer top-ups.

Of mothers with an employer top-up, only 1 in 5 received payments for six months or more. Therefore only a fraction of all mothers receive full-earnings replacement for the entire period they are on leave. Whether or not the top-up replaces full-earnings or lasts the full EI/QPIP benefit period, the program influences career continuity such that 96% of mothers with a top-up returned to the same employer.

Perspectives

■ Notes

1. Further details about SUB plans for maternity and parental leave can be found on Service Canada's website (<http://www.servicecanada.gc.ca/eng/ei/employers/supplements.shtml>).
2. The Employment Insurance Coverage Survey does not collect information on top-ups for fathers. Moreover, the participation rate and average time off for fathers is still substantially less than for mothers (Marshall 2008).
3. Self-employed are excluded.
4. The median number of weeks also ranged between 16 and 18 for the 2000 to 2008 period.
5. Research shows that one-third of employees are offered at least one form of non-monetary personal or family support program such as on-site child care, elder care, employee assistance or fitness programs (Marshall 2003b).

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Immigrants working in regulated occupations

Danielle Zietsma

In 2006, there were 3.6 million immigrants in Canada's labour force, many of whom were highly educated. Education levels of more recent immigrants have risen in recent years such that, by 2006, 42% of immigrants who had landed in Canada since 2001 had a university degree. At the same time, 16% of the Canadian-born had university degrees. In addition to high levels of education, many of these immigrants also came with foreign work experience.

One of the principal goals of Canadian immigration policy is to fill gaps in the labour market. With the aging of the baby boomers, a number of occupational shortages have emerged in the Canadian labour market, particularly in health care professions (such as physicians, nurses and pharmacists) and in management occupations. Shortages are projected to continue as boomers exit the labour market (Human Resources and Skills Development Canada 2007). Some projections imply that immigrants could account for nearly all labour force growth as soon as 2011 (Statistics Canada 2003).

Despite their high levels of educational attainment, many recent immigrants struggle in the labour market. In 2006, immigrants who had been in Canada for less than 10 years had higher unemployment rates and lower employment rates than those born in Canada. Furthermore, many of these immigrants were unable to find jobs in their chosen fields. And, in recent years, immigrants have become more likely to be in low income (Picot, Hou and Coulombe 2007).

New immigrants to Canada indicate that they faced a number of challenges in the Canadian labour market, most importantly: not enough Canadian job experience, lack of connections in the job market and foreign credentials not being recognized (Schellenberg and Maheux 2007). Others suggest that newcomers may lack knowledge about getting their skills recog-

nized, employers may lack knowledge about foreign credentials, and there may be real differences in the quality of foreign credentials relative to domestic qualifications (Kustec, Thompson and Xue 2007).

For many occupations, hiring is based on the employer's decision that the candidate has an acceptable combination of education and experience to do the job. For those seeking work in regulated occupations, another hurdle is added. Regulated occupations are governed by provincial regulatory bodies and/or professional associations and have very specific requirements regarding the credentials necessary to practice the occupations. This study focuses on the regulated occupations since a clear relationship exists between educational credentials and the ability to meet the requirements of the occupation.

Many occupations for which immigrants have trained are regulated occupations. These include engineering, medicine, nursing and teaching. For immigrants who wish to work in a regulated occupation, practicing that occupation outside Canada is not considered sufficient and they must prove that their foreign credentials meet Canadian standards.

In 2006, of the 1.5 million university-educated, working-age immigrants (15 years of age and over), 41% had studied in fields that would typically place them in regulated occupations compared to 39% of Canadian-born university graduates.

This study examines the extent to which immigrants in 2006 with a field of study that typically leads to a regulated occupation were working in that occupation (see *Data source and definitions*). For example, how likely are immigrants with engineering degrees to find work as an engineer? It then examines how this match rate varies across provinces and by the immigrants' source countries, and the amount of time they spent in Canada. Finally, it looks at the type of work performed by those not working in the occupations for which they studied.

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1.8 million graduates from fields of study leading to regulated professions

In 2006, there were 1.8 million university degree holders in Canada from fields of study that would typically lead to work in a regulated occupation. Of these, 208,700 were immigrants educated in Canada, while 403,900 were immigrants who were foreign-educated (Table 1).

Immigrants with a degree in a regulated field of study who studied outside Canada had an unemployment rate that was much higher than that for Canadian-educated immigrants with similar degrees. In 2006, foreign-educated immigrants from regulated fields of study had an unemployment rate of 7.0%, while immigrants with Canadian degrees in regulated fields of study had an unemployment rate of 4.2%, a gap of 2.8 percentage points.

Table 1 Labour force activity of university graduates with regulated field of study, by immigrant status and location of study

	Total	Canadian-born	Immigrants	
			Studied in Canada	Studied outside Canada
			'000	
Population	1,819.8	1,207.2	208.7	403.9
Labour force	1,437.0	961.2	170.3	305.5
Employed	1,384.3	937.1	163.2	284.1
Unemployed	52.7	24.1	7.1	21.4
Not in labour force	382.8	246.0	38.3	98.4
			%	
Participation rate	79.0	79.6	81.6	75.6
Unemployment rate	3.7	2.5	4.2	7.0
Employment rate	76.1	77.6	78.2	70.3

Source: Statistics Canada, Census of Population, 2006.

Data source and definitions

Unless otherwise stated, all data are from Statistics Canada's 2006 Census of Population. Since census data are randomly rounded to the nearest 0 or 5, not all numbers will reflect totals and there may be slight differences among tables.

Who's included in this study?

Immigrants and persons born in Canada who meet all of the following criteria:

- non-institutional resident
- age 15 or over
- university degree holder
- have a field of study that typically leads to a nationally regulated occupation
- employed
- immigrant who obtained university credentials outside Canada
- not a senior manager (since no skill level information is available for this group)

Occupations that are regulated in all Canadian provinces and chosen for study:

Architects	Optometrists
Accountants	Pharmacists
Chiropractors	Doctors
Dentists	Physiotherapists
Dietitians/Nutritionists	Registered Nurses
Engineers	Teachers
Lawyers	Veterinarians
Occupational Therapists	

A note on regulated occupations: Occupations that are regulated either by the provinces or by professional associations are generally regulated because they have a responsibility either for public health or to protect consumers/clients. For this reason, educational and any additional requirements are clearly defined and licensure cannot be obtained unless requirements are clearly met.

For the regulated occupations selected for this study, detailed occupational requirements are in Appendix I. Some nationally regulated occupations have been excluded from the study due to small numbers of immigrants studying and/or working in those fields.

While a small number of the Canadian-born may have studied abroad (fewer than 150,000 out of over 3 million), these people have been left in the Canadian-born group since they are few in number and do not affect the overall results.

The main indicator employed in this study is the '**match rate**'—the total number of people working in the selected regulated occupations divided by the total number of employed people from the fields of study that would typically lead them to work in those occupations.¹ (See Appendix II for a list of the fields of study that constitute a match with NOC occupations as defined by Human Resources and Skills Development Canada.)

Table 2 University graduates of fields leading to regulated occupations, by location of study

	Canadian-born	Immigrants		Canadian-born	Immigrants	
		Studied in Canada	Studied outside Canada		Studied in Canada	Studied outside Canada
Field of study	1,207,220	208,675	403,910	100	100	100
Architecture	16,390	4,140	11,115	1	2	3
Accounting	100,235	27,220	40,050	8	13	10
Chiropractics	6,455	450	420	1	0	0
Dentistry	12,965	3,770	5,735	1	2	1
Diet/Nutrition	4,630	635	720	0	0	0
Engineering	209,300	74,440	211,825	17	36	52
Law	96,865	10,955	18,165	8	5	4
Occupational therapy	10,550	1,115	810	1	1	0
Optometry	3,350	340	440	0	0	0
Pharmacy	23,295	4,965	8,890	2	2	2
Medicine	36,050	9,405	19,980	3	5	5
Physiotherapy	14,190	1,725	2,880	1	1	1
Nursing	101,210	13,225	19,030	8	6	5
Teaching	563,945	55,150	60,710	47	26	15
Veterinary medicine	7,790	1,140	3,140	1	1	1

Source: Statistics Canada, Census of Population, 2006.

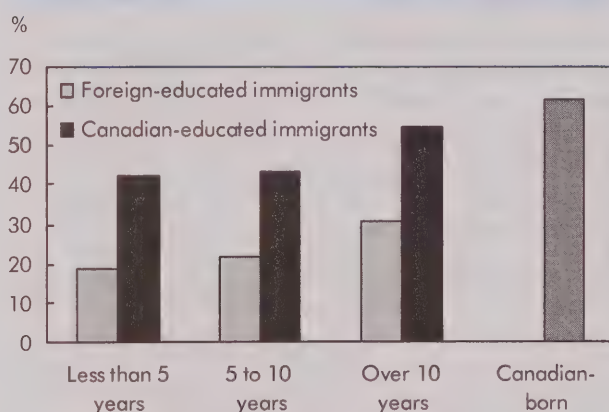
Engineering graduates most numerous among immigrants

In 2006, the field of study distribution differed between immigrants and those born in Canada. Among immigrants from a field of study that typically leads to a regulated occupation, over one-half (52%) of foreign-educated graduates had engineering degrees (Table 2). Among the Canadian-born, education was the number one field of study (47%), while engineering was the second at 17%.

Foreign-educated immigrants less likely to work in their fields of study

Foreign-educated immigrants with fields of study that typically lead to regulated professions were less likely to work in these professions compared to the Canadian-born. Among those employed in 2006, 62% of the Canadian-born were working in the regulated profession for which they trained compared to only 24% of foreign-educated immigrants.

Both the length of time spent living in Canada and where they studied had an impact on immigrants' ability to find work in the regulated profession for which they studied. In 2006, regardless of how long immigrants had been in Canada, those who had studied in

Chart A Match rates by immigrant type, location of study and period of landing

Source: Statistics Canada, Census of Population, 2006.

Canada had much higher match rates than immigrants who had studied abroad (Chart A). Those who landed in Canada in 1996 or earlier and held a Canadian degree had match rates that were twice as high as their

foreign-educated counterparts. In fact, with more time in Canada, the match rates for both foreign- and Canadian-educated immigrants increased.

While the differences in match rates between Canadian- and foreign-educated immigrants with the same landing period show that Canadian-educated immigrants do not face the obstacle of foreign credential recognition (and are less likely to have foreign work experience), they also reflect other factors. For example, the differences might also indicate that these immigrants are more likely to speak an official language with greater ease, have more knowledge of the Canadian labour market, and have more established networks through which to find employment.

To focus on the recognition of foreign credentials, immigrants who obtained their university degrees in Canada have been excluded from the sample for the remainder of the study.

Foreign-educated immigrants less likely to find work in their trained professions

Canadian-born and foreign-educated immigrants in regulated health occupations generally had the highest match rates (Table 3). These included medicine, occupational therapy, chiropractics and nursing. While these fields had high match rates for the Canadian-born, the same was not always true for foreign-educated immigrants. Immigrants who trained as chiropractors had a match rate that was comparable to the Canadian-born match rate (84% versus 87%). Immigrants who trained as nurses and occupational therapists had match rates that were lower than that for their Canadian-born counterparts, (56% versus 73% for nurses and 65% versus 82% for occupational therapists), but nevertheless had some of the highest match rates among foreign-educated immigrants.

Among the health professions, veterinary medicine had one of the lowest match rates for immigrants—29%, compared to 83% for the Canadian-born. Of the Canadian-born who studied dentistry, 82% worked as dentists compared to 44% of immigrants.

Immigrants who studied law outside Canada had the lowest match rates of all fields of study leading to a regulated occupation. While 69% of the Canadian-born who studied law worked as lawyers, the corresponding figure was 12% for immigrants, making the Canadian-born with law degrees almost 6 times as likely as immigrants to be working as lawyers.

Table 3 Match rates of employed foreign-educated immigrants working in the corresponding occupation, by immigrant type

	Canadian-born		Foreign-educated immigrants	
	Total	Match rate	Total	Match rate
		%		%
Field of study	937,050	62	284,080	24
Chiropractics	5,745	87	345	84
Occupational therapy	9,345	82	560	65
Medicine	31,040	92	12,865	56
Nursing	78,880	73	13,150	56
Pharmacy	18,760	84	6,020	45
Dentistry	12,310	82	2,165	44
Physiotherapy	10,465	90	3,750	44
Optometry	2,760	95	340	38
Veterinary medicine	6,580	83	2,225	29
Architecture	13,860	56	7,695	26
Teaching	85,410	50	29,445	24
Diet/Nutrition	408,795	62	35,860	20
Accounting	3,225	60	435	20
Engineering	167,260	42	157,930	19
Law	82,615	69	11,295	12

Source: Statistics Canada, Census of Population, 2006.

Engineering was the most common field of study in a regulated occupation for immigrants. Of the 157,900 immigrants who studied engineering and were employed, 30,000 were working as engineers, a match rate of 19%. Slightly more Canadian-born graduates studied engineering (167,300), with a match rate more than double that of immigrants (42%).

While 92% of the Canadian-born who studied medicine were working as doctors in 2006, immigrants with the same field of study were less likely to be working as doctors (56%).

Match rates by province

While match rates among the Canadian-born were similar from province to province, match rates for foreign-educated immigrants were more varied (Table 4). The provincial match rates for the Canadian-born fell between 59% and 65%, while for immigrants they ranged from a low of 19% in Quebec to a high of 60% in Newfoundland and Labrador.

Table 4 Match rates of foreign-educated immigrants working in the corresponding occupation, by immigrant type and province

	Canadian-born	Foreign-educated immigrants
Province	%	
Newfoundland and Labrador	63	60
Prince Edward Island	63	37
Nova Scotia	60	40
New Brunswick	62	37
Quebec	59	19
Ontario	62	24
Manitoba	65	26
Saskatchewan	61	38
Alberta	62	31
British Columbia	62	22

Source: Statistics Canada, Census of Population, 2006.

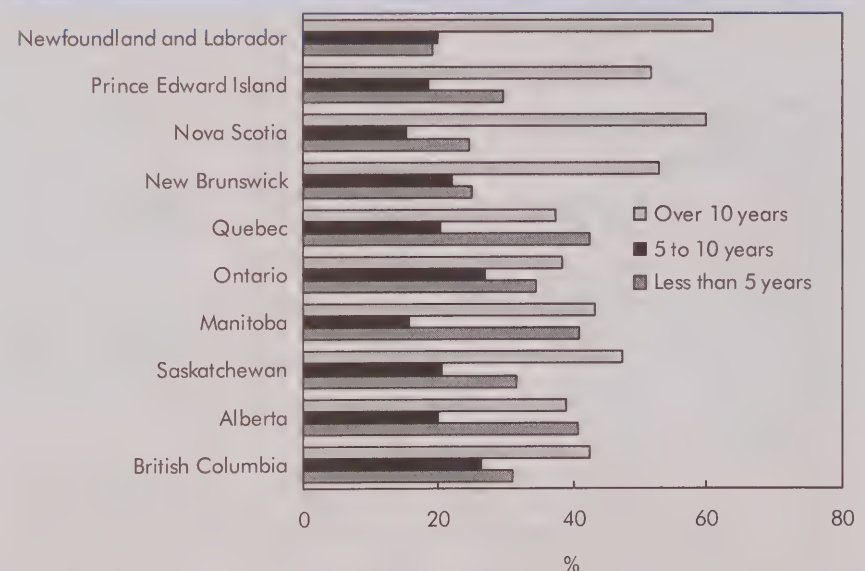
Foreign-educated immigrants living in Canada's most popular immigrant destinations (Ontario, British Columbia and Quebec) had the lowest match rates. Immigrants in Quebec were the least likely to find a career match in their field of study, with 19% of immigrants working in the regulated occupation most commonly associated with their field of study. British Columbia was next with a match rate of 22%, and Ontario's rate was 24%. In all of these provinces, the match rates for immigrants were less than one-half the match rates of the Canadian-born in their respective provinces.

Newfoundland and Labrador had the highest match rate for immigrants at 60%, three percentage points behind the Canadian-born in the province. However, their numbers were small: 605 in total.

While the mix of fields of study can have an impact on overall provincial match rates, other factors, like distribution of immigrants by period of landing, could also affect overall match rates. More specifically, provinces with higher concentrations of more recent immigrants could have lower match rates than those with higher concentrations of immigrants who have been in Canada for longer than 10 years since more recent immigrants are less likely to be working in the regulated occupation for which they trained.

Quebec, with the lowest match rate, also had the highest proportion of immigrants who had studied for regulated occupations (42%) and landed after 2001 (Chart B). Elsewhere the results were less clear cut. In general, the Atlantic provinces had higher proportions of immigrants who had landed prior to 1996. Match rates for immigrants were also above the national average in Saskatchewan and Alberta, regions that had strong labour markets in 2006. Ontario's match rate for foreign-educated immigrants mirrored the national average at 24%. In contrast, Quebec and British Columbia had match rates that were below the national average.

Chart B Proportion of employed immigrants who studied for work in regulated occupations, by province and time since landing



Source: Statistics Canada, Census of Population, 2006.

Immigrants with the highest match rates studied in countries with similar education systems and language of instruction as Canada

Immigrants with the highest match rates studied in English-speaking countries, the official language spoken by the majority of Canadians. In fact, these immigrants had very similar match rates to the Canadian-born. Immigrants who studied in Ireland, New Zealand and South Africa had match rates that were similar to the 62% rate for the Canadian-born, while the match rate for all immigrants was 24%. Immigrants from Australia and the United Kingdom also had match rates that were well above the average (Table 5).

Table 5 Highest match rates by country where degree earned¹

	Foreign-educated immigrants	Match rate
Country where immigrants' highest degree earned		%
Ireland	810	59
New Zealand	575	57
Republic of South Africa	3,790	56
Australia	2,105	50
United Kingdom	17,975	44
Jamaica	605	41
Trinidad and Tobago	270	41
Israel	1,145	39
United States of America	22,225	39
Hungary	790	36

1. Includes only countries of highest degree with at least 200 immigrants who have a field of study that would typically lead them to work in a regulated occupation.

Source: Statistics Canada, Census of Population, 2006.

Table 6 Lowest match rates by country where degree earned

	Foreign-educated immigrants	Match rate
Country where immigrants' highest degree earned		%
Ukraine	6,995	14
Algeria	2,750	13
Cuba	1,020	12
South Korea	5,835	12
Haiti	555	12
El Salvador	645	12
Belarus	1,050	10
Morocco	720	9
Republic of Moldova	585	9
Kazakhstan	740	7

Source: Statistics Canada, Census of Population, 2006.

At the other end of the spectrum, immigrants with the lowest match rates often obtained their degrees in developing countries (Table 6). Immigrants who studied in Kazakhstan had the lowest match rate, with 7% working in the associated regulated occupation.

What are the actual occupations of the unmatched?

The unmatched are university graduates who studied for a regulated occupation but are employed in a different occupation. Based on match rates of 62% for the Canadian-born and 24% for all immigrants, there remains a substantial fraction of both groups who were unmatched. In total, in 2006 there were approximately 365,000 Canadian-born graduates and

216,000 foreign-educated immigrants who were working in occupations to which their studies would not typically lead.

The top two occupations held by unmatched immigrants in 2006 were in professional occupations in natural and applied sciences, followed by technical occupations related to natural and applied sciences, and accounting for 33% of unmatched immigrants (Table 7).

The next two occupations were clerical and sales and service occupations. Twenty-six percent of unmatched immigrants were working in these occupations, which would not normally require a degree.

Among the Canadian-born, the most common occupations among the unmatched in 2006 were 'other managers' (which includes managers outside senior management), followed by teachers and professors. Clerical occupations were in the top 10 for unmatched Canadian-born graduates, with 6% of the Canadian-born falling here. Unmatched immigrants, however, were even more likely to work in clerical occupations, with 16% holding clerical jobs. Sales and service occupations accounted for less than 1% of positions among the Canadian-born working outside their field of study compared to 10% for immigrants.

Thus it appears a much higher proportion of highly qualified immigrants than Canadian-born graduates are working in occupations requiring less education than they have acquired. This hypothesis can be addressed more directly by assigning skill levels to occupations (see, for example, Galarneau and Morissette 2008).

Table 7 Actual occupations of immigrants with degrees related to regulated occupations, by immigrant type (unmatched)

Rank		Unmatched immigrant	
		Total	%
1.	Professional occupations in natural and applied sciences	20,460	17
2.	Technical occupations related to natural and applied sciences	19,105	16
3.	Clerical occupations	18,540	16
4.	Sales and service occupations	11,545	10
5.	Specialist managers	9,815	8
6.	Other managers, not elsewhere classified	8,785	7
7.	Teachers and professors	7,975	7
8.	Managers in retail trade, food and accommodation services	7,655	7
9.	Assemblers in manufacturing	7,215	6
10.	Machine operators in manufacturing	6,305	5

Source: Statistics Canada, Census of Population, 2006.

Table 8 Distribution of unmatched university degree holders

	Canadian-born	Immigrants
	%	
Skill level usually required by occupation		
University degree (any level)	43	23
College or apprenticeship training	34	35
High school	19	31
Short-work demonstration	4	11
Overqualification rate	57	77

Source: Statistics Canada, Census of Population, 2006.

When it came to working in an occupation that required no formal education (known as a short-work demonstration), unmatched immigrants were almost three times as likely to be in these occupations. While 11% of unmatched immigrants were working in these types of jobs in 2006, this was the case for 4% of the unmatched Canadian-born.

Summary

This study found that, in 2006, immigrants who studied for a regulated occupation outside Canada were less likely to be working in that occupation compared to both immigrants who studied in Canada and those who were born in Canada.

In 2006, there were 284,000 employed foreign-educated immigrants from fields of study that would normally lead to work in a regulated occupation. Of this number, 24% were working in their trained professions. In contrast, 163,000 Canadian-educated immigrants studied for work in a regulated occupation, with a match rate of 53%. The match rate among the Canadian-born was 62%.

While foreign-educated immigrants were less likely to work in the regulated occupations for which they held degrees, this discrepancy narrowed with time spent in Canada. However, even after 10 years in Canada, foreign-trained immigrants trailed the match rate of the Canadian-born by 27 percentage points, while Canadian-educated immigrants trailed by 6 percentage points.

Are the unmatched Canadian-born more likely to work in highly skilled jobs than unmatched immigrants?

The Department of Human Resources and Skills Development's National Occupational Classification System (NOC) not only classifies occupations, but also includes a skill level associated with each of its occupations. There are four main skill levels: university degree; college or apprenticeship training; high school; and short-work demonstration (for example, a demonstration on how to operate a cash register or how to serve food to customers). University graduates who are working in occupations that require less than a university education are considered 'overqualified' for their positions.

Since all people in the sample have university degrees, the percentage of those working in occupations requiring less than university is the overqualification rate. In 2006, 57% of unmatched Canadian-born graduates were overqualified compared to 77% of immigrants (Table 8).

The match rate also varied by regulated occupation for which an individual had studied. Immigrants with fields of study in health professions had higher match rates than those who studied to be teachers, engineers and lawyers. While match rates for foreign-educated doctors and nurses were both 56%, the rate was much lower for those who studied teaching (24%), and was lower still for those who studied engineering (the most common field of study among foreign-educated immigrants) at 19%. Immigrants who were law graduates had the lowest match rate of all fields of study at 12%.

On a provincial level, match rates were highest for immigrants in the East, particularly in Newfoundland and Labrador (with rates similar to the Canadian-born). Match rates for immigrants were also above the national average in Saskatchewan and Alberta, regions that had strong labour markets in 2006. In contrast, Quebec and British Columbia had match rates that were below the national average, while Ontario's match rate mirrored the national average.

Foreign-educated immigrants who were not working in the regulated occupation typically associated with their field of study were often working in professional occupations in natural and applied sciences and technical occupations related to natural and applied sciences. However, large shares of these immigrants were also working in clerical occupations and sales and service occupations despite their high levels of educational attainment.

While all of the unmatched foreign-educated immigrants in the study had university degrees that could

Table 9 Match rates, immigrants, by country where degree earned

			Total	Match rate	
Country of highest degree		%	Country of highest degree (concluded)		%
Ireland (Eire)	810	59	Bangladesh	1,840	23
New Zealand	575	57	Venezuela	850	22
Republic of South Africa	3,790	56	Jordan	300	22
Australia	2,105	50	Argentina	1,140	21
United Kingdom	17,975	44	India	25,915	21
Jamaica	605	41	Armenia	235	21
Trinidad and Tobago	270	41	Lebanon	1,985	21
Israel	1,145	39	Congo, Democratic Republic	285	21
United States of America	22,225	39	Slovakia	975	21
Hungary	790	36	Turkey	1,290	21
Kenya	365	36	Iraq	1,930	21
Hong Kong, Special Administrative Region	1,810	34	Pakistan	8,230	21
Netherlands	1,040	33	Syria	970	21
Nigeria	935	33	Brazil	1,015	20
Sweden	385	32	Taiwan	2,560	20
Belgium	760	32	Philippines	39,455	19
Egypt	5,525	30	Thailand	345	19
Croatia	815	30	Japan	1,360	19
Poland	7,995	30	Bulgaria	2,120	18
Serbia and Montenegro	2,200	30	Colombia	3,115	18
Czech Republic	970	29	Viet Nam	1,330	17
Yugoslavia, n.o.s.	2,400	29	Peru	1,275	17
Greece	210	29	Latvia	365	16
Singapore	405	28	Indonesia	405	16
Bosnia and Herzegovina	1,585	27	Mexico	2,090	16
Chile	785	27	Sudan	360	15
Iran	6,705	27	People's Republic of China	32,505	15
France	4,750	26	Russian Federation	10,440	15
Italy	700	26	Albania	1,505	15
Sri Lanka	1,435	25	Ukraine	6,995	14
Germany	2,530	24	Algeria	2,750	13
Guyana	330	24	Cuba	1,020	12
Romania	13,860	24	South Korea	5,835	12
Switzerland	520	24	Haiti	555	12
Macedonia	455	23	El Salvador	645	12
			Belarus	1,050	10
			Morocco	720	9
			Republic of Moldova	585	9
			Kazakhstan	740	7

Source: Statistics Canada, Census of Population, 2006.

lead to work in a regulated occupation, many of them had considerably more education than what would normally be required for the jobs they did find in 2006. While 57% of the unmatched Canadian-born were overqualified, this was the case for 77% of unmatched immigrants. Foreign-educated immigrants were also more commonly found in low-skill

jobs. In 2006, 11% of foreign-educated immigrants were working in occupations whose skill level required a short-work demonstration and no formal education compared to just 4% of the Canadian-born.

Overall, these results accord with studies that point to some barriers for foreign-trained immigrants intending to work in their chosen occupations in Canada. Results from a survey of Canadian employers by the Public Policy Forum showed that many employers make their hiring decisions based on their perception that the credentials or experience are not equivalent without verifying them (Public Policy Forum 2004). The survey also indicated that many employers—particularly employers in regulated occupations—did not value foreign work experience as much as Canadian work experience. Other research indicates that the lower valuation placed on the foreign work experience of immigrants plays a role in the immigrant-native earnings gap (Green and Worswick 2002).

Perspectives

■ Notes

1. Match rates among immigrants are related to a number of factors that are beyond the scope of this study: foreign credential recognition, recognition of foreign work experience, personal characteristics, labour market conditions, and personal choices (for example, the desire to re-qualify for a regulated occupation in Canada).

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Appendix I Employment requirements among NOC occupations regulated in all Canadian provinces¹

Regulated occupation	Employment requirements
Architects	<ul style="list-style-type: none"> • A bachelor's degree from an accredited school of architecture or Completion of the syllabus of studies from the Royal Architectural Institute of Canada (RAIC) is required. • A master's degree in architecture may be required. • Completion of a three-year internship under the supervision of a registered architect is required. • Completion of the architect registration examination is required. • Registration with the provincial association of architects in the province of work is required. <p>Landscape architect:</p> <ul style="list-style-type: none"> • A bachelor's degree in landscape architecture is required. • A master's degree in landscape architecture may be required. • In Ontario and British Columbia, landscape architects require a two-year internship and the successful completion of a provincial registration exam. • In the remaining provinces and territories, landscape architects usually require two years of landscape design experience and an interview by their respective provincial associations to receive association certification.
Accountants	<ul style="list-style-type: none"> • Chartered accountants require a university degree and completion of a professional training program approved by a provincial institute of chartered accountants and, depending on the province, either two years or 30 months of on-the-job training and membership in a provincial Institute of Chartered Accountants upon successful completion of the Uniform Evaluation (UFE). • Certified general accountants and certified management accountants require a university degree and completion of a training program approved by the Society of Certified General Accountants or Society of Management Accountants and several years of on-the-job training and certification by the Certified General Accountants Association or the Society of Management Accountants. • Auditors require education, training and recognition as indicated for chartered accountants, certified general accountants or certified management accountants and some experience as an accountant. • Auditors may require recognition by the Institute of Internal Auditors. • To act as a trustee in bankruptcy proceedings, auditors and accountants must hold a licence as a trustee in bankruptcy. • Licensing by the provincial or territorial governing body is usually required for accountants and auditors practising public accounting.

Additional information:

- There is limited mobility among the three professional accounting designations (CA, CGA and CMA).
- Progression to auditing or accounting management positions is possible with experience.

Chiropractors

- A minimum of two years of university undergraduate studies in sciences and completion of a four- or five-year program at an institution accredited by the Accreditation Commission of the Council on Chiropractic Education and completion of the examinations of the Canadian Chiropractic Examining Board and of the provincial licensing body are required.
- Licensure by a regulatory body is required in all provinces and in the Yukon.

Dentists

- One to four years of pre-dentistry university studies, or, in Quebec, completion of a college program in sciences and a university degree from a recognized dental program are required.
- Licensing by a provincial or territorial regulatory body is required.
- Dentists in general practice can move into a specialized practice through advanced training.
- Licensing for specializations is required.

Dieticians/Nutritionists

- Dieticians require a master's or bachelor's degree in dietetics, nutrition or a related field such as food and nutritional science or biochemistry and approximately 40 weeks of supervised practicum training.
- Registration with a regulatory body is required in all provinces for dieticians.
- Membership in the national association, Dieticians of Canada, may be required for dieticians to practise.
- Nutritionists usually require the same education and training as dieticians.
- Registration with a regulatory body is required for nutritionists in British Columbia, Alberta, Quebec and (as a registered dietician-nutritionist) New Brunswick.
- Membership with the national association, Dieticians of Canada, and/or a provincial regulatory body is available for nutritionists who have the same education and practicum training as dieticians.

Engineers

- A bachelor's degree in civil engineering or in a related engineering discipline is required.
- A master's degree or doctorate in a related engineering discipline may be required.
- Licensing by a provincial or territorial association of professional engineers is required to approve engineering drawings and reports and to practise as a Professional Engineer (P.Eng.).
- Engineers are eligible for registration following graduation from an accredited educational program, and after three or four years of supervised work experience

in engineering and passing a professional practice examination.

Additional information:

- There is considerable mobility between civil engineering specializations at the less senior levels.
- Engineers often work in a multidisciplinary environment and acquire knowledge and skills through work experience that may allow them to practise in associated areas of science, engineering, urban planning, sales, marketing or management.
- Supervisory and senior positions in this unit group require experience.

Lawyers

Lawyers:

- Two to three years of undergraduate studies or, in Quebec, completion of college program and a bachelor's degree from a recognized law school and successful completion of the bar examination and completion of a period of articling are required.
- Licensing by the provincial or territorial law society is required.

Notaries (Quebec):

- A bachelor's degree from a recognized law school and a Diploma of Notarial Law (D.D.N.) or a master's degree of law with specialization in notarial law and a 32-week vocational training program are required.
- Registration with the Corporation of Notaries is required.

Additional information:

- Lawyers wishing to practise in another province may be required to pass examinations set by the provincial law society.

Judges:

- Extensive experience as a lawyer or as a professor of law with continuous membership in the bar association is usually required.
- Membership in good standing with a provincial or territorial law society or bar association is required.
- Judges are appointed by federal or provincial cabinet.
- Those appointed to more senior positions in a court, such as chief justice, usually have experience as judges in that court.

Occupational Therapists

- A university degree in occupational therapy including supervised fieldwork is required or graduation from an occupational therapy program approved by the World Federation of Occupational Therapists (WFOT) is accepted in some provinces.
- Completion of the national certification examination may be required.
- Licensure with a regulatory body is required in all provinces.
- Membership in the national association, Canadian Association of Occupational Therapists, is required in some provinces.

	<ul style="list-style-type: none"> Occupational therapists may obtain expertise in a particular area through additional training or experience.
Optometrists	<ul style="list-style-type: none"> One to three years of college or university, with a concentration in mathematics and science courses and a four-year university program in optometry are required. Licensing by the provincial or territorial regulatory governing body is required.
Pharmacists	<ul style="list-style-type: none"> A bachelor of science degree in pharmacy is required. Pharmacists also require practical training under the supervision of a pharmacist. Licensure is required in all provinces and territories for community and hospital pharmacists.
Doctors	<p>General practitioners and family physicians:</p> <ul style="list-style-type: none"> A bachelor's degree or In Quebec, completion of a college program and one year of pre-medicine university studies is usually required. Graduation from an approved medical school and two to three years of family medicine residency training are required. Completion of the qualifying examinations of the Medical Council of Canada and licensing by the provincial or territorial licensing authority are required. <p>Additional information:</p> <ul style="list-style-type: none"> General practitioners and family physicians may become specialist physicians with additional training. <p>Specialist physicians:</p> <ul style="list-style-type: none"> A bachelor of science degree or, in Quebec, completion of a college program and one year of pre-medicine university studies is usually required. Graduation from an approved medical school and specific specialty training are required. Completion of the certifying examinations of the Royal College of Physicians and Surgeons of Canada and licensing by the provincial or territorial licensing authority are required. <p>Specialists in clinical medicine:</p> <ul style="list-style-type: none"> Four to five years of specialty residency training are required. Two years of subspecialty training may also be required. <p>Specialists in laboratory medicine:</p> <ul style="list-style-type: none"> Four to five years of specialty residency training are required. <p>Specialists in surgery:</p> <ul style="list-style-type: none"> Five to six years of specialty residency training are required. Two years of subspecialty training may also be required. <p>Additional information:</p> <ul style="list-style-type: none"> Progression to management positions, such as director of laboratory medicine or

chief of surgery, is possible with experience.

Physiotherapists

- A university degree in physiotherapy and a period of supervised practical training are required.
- A licence or registration with a regulatory body is required to practise physiotherapy in all provinces.
- Completion of the Physiotherapy National Exam, administered by the Alliance of Physiotherapy Regulatory Boards, may be required.

Registered Nurses

Head nurses:

- Completion of a university, college or other approved registered nursing program is required.
- Courses in management studies such as the Nursing Unit Administration Course offered by the Canadian Hospital Association or other degree, diploma, certificate or studies in management or administration may be required.
- Registration as a registered nurse by a provincial or territorial regulatory body or, in Manitoba, Saskatchewan, Alberta and British Columbia, provincial registration as a registered psychiatric nurse is required.
- Clinical experience as a registered nurse is required.

Registered nurses:

- Completion of a university, college or other approved registered nursing program is required.
- Additional academic training or experience is required to specialize in a specific area of nursing.
- A master's or doctoral degree in nursing is usually required for clinical nurse specialists, clinical nurses, nursing consultants and nursing researchers.
- Registration with a regulatory body is required in all provinces and territories.

Nurse practitioners:

- A master's degree in nursing, or a nursing program or other advanced nurse practitioner diploma program is required.
- Registration with a regulatory body is required in all provinces and territories.
- In Ontario, successful completion of the Extended Class Registration Examination (ECRE) is required for registration as Registered Nurse in the Extended Class RN(EC).

Registered psychiatric nurses:

- Completion of a university or college registered psychiatric nursing program is required.
- Registration with a regulatory body is required in Manitoba, Saskatchewan, Alberta and British Columbia.

Additional information:

- Nurses trained exclusively as registered psychiatric nurses (RPN) are regulated in

Manitoba, Saskatchewan, Alberta and British Columbia. In all other provinces and territories, registered nurses (RN) may work as psychiatric nurses without separate registration.

- Registered nurses may progress to supervisory and managerial positions with experience.

Teachers

Secondary school teachers:

- Teachers of academic subjects require a bachelor's degree in education which is often preceded by a bachelor's degree in the arts or sciences.
- Teachers of vocational or technical subjects require a bachelor's degree in education which is usually preceded by specialized training or experience in the subject.
- Instructors of trades in Quebec require completion of an apprenticeship training program and industry or trade certification.
- Department heads usually require several years of teaching experience.
- To specialize in special education or English or French as a second language, additional training is required.
- A provincial teaching certificate is required.

Elementary school teachers:

- A bachelor's degree in education is required.
- Additional training is required to specialize in special education or second- language instruction.
- A provincial teaching certificate is required. Additional certification is required to teach English or French as a second language.

Veterinarians

- Two to four years of pre-veterinary university studies or, in Quebec, completion of a college program in health science and a four-year university degree in veterinary medicine and completion of national certification examinations are required.
 - Provincial licensing is required.
 - Entry into research positions may require postgraduate study.
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1. HRSDC National Occupational Classification (NOC) manual.

Appendix II Criteria for 'match,' National Occupational Classification (NOC) code and field of study (Classification of Instructional Programs [CIP] code) concordance

Occupations	NOC	CIP CODE(S)
Architects	2151, 2152	81, 85
Certified General Accountants	1111	1187-1192
Certified Management Accountants	1111	
Chartered Accountants	1111	
Chiropractors	3122	971
Dentists	3113	977-989
Dieticians/Nutritionists	3132	1148, 1149
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What's new?

Recent reports and studies

■ From Statistics Canada

■ *Labour productivity in the provinces and territories*

Canadian business sector productivity increased at an annual average rate of 1.3% between 1997 and 2008. Newfoundland and Labrador led the country with 4.5% in annual average growth of business labour productivity, followed by Saskatchewan (2.1%) and Manitoba (1.9%), while Alberta posted the lowest increase (0.6%).

A change in the relative contribution of conventional crude oil extraction to the economies of Newfoundland and Labrador and Alberta played a large role.

The increase in Newfoundland and Labrador occurred as new oil extraction platforms started production during the period. In Alberta, the transition from the traditional oil industry to the more costly oil sands continued. At the same time, Alberta's booming population led to an expansion of the labour-intensive service sector. Both of these changes in Alberta shifted economic activity to sectors with lower average productivity.

Following Alberta, British Columbia was the second province to trail the national average during the period, while Quebec's annual average growth rate was on a par with the national average.

For more information, see the January 27, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Impact of H1N1 and seasonal flu on hours worked*

In November 2009, 1.5 million employed people age 15 to 69 reported they were absent from work as a result of the H1N1 or seasonal flu, representing 9.0% of workers in that age group. On average, these absent workers lost 19.6 hours of work each, for a total of 29.5 million hours lost.

In the same month, 600,000 people in the same age group put in 8.6 million extra hours at work as a result of the H1N1 or seasonal flu. The net effect was a loss of 20.9 million hours in November.

The age group most affected was workers age 30 to 44, as nearly 12% of these workers lost hours, on average 18.8 hours each.

Provincially, flu-related absenteeism was highest among workers in Newfoundland and Labrador, where 14.2% of workers reported lost hours. The lowest rate was in Quebec (7.6%).

In terms of average hours lost per absent worker, those in Newfoundland and Labrador lost 24.7 hours, the highest amount. Workers in Prince Edward Island had the fewest lost hours (16.2).

Workers employed in health occupations were the most likely to report working more hours in the month due to the flu; 10.5% did so, for a total of 2.0 million extra hours. The net impact on hours for health workers was a loss of 76,000 hours, the smallest net loss of all occupational groups.

For more information, see the January 15, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *The changing cyclical behaviour of labour productivity*

The time between the onset of lower output and job losses has shortened, to the point that early in 2008 employment fell before output receded in the United States. In Canada, employers did not reduce labour inputs as fast as output in 2008/2009. As a result, labour productivity in Canada declined for over a year during a recession for the first time in over three decades.

Since the fourth quarter of 2007, labour productivity in Canada fell 1.2% through the third quarter of 2009, despite firms having almost two years to adjust to

lower demand. Over the same period, labour productivity rose 4.9% in the United States; this country has experienced a clear trend towards productivity rising during recessions. In Canada, productivity by the end of most recessions was higher than at the beginning, with the exception of the 2008/2009 downturn.

Severe recessions provoked a range of responses in business sector productivity. In some instances, like Canada in 1981/1982 and the United States in 2008/2009, firms cut jobs rapidly and raised productivity. In others, such as the United States in 1981/1982 and Canada in 2008/2009, the loss of jobs was more muted and productivity declined.

For more information, see the January 14, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Survey of Household Spending*

Canadian households spent \$71,360 on average in 2008, up 2.0% from 2007. This was slightly below the rate of inflation of 2.3% as measured by the Consumer Price Index. Households in Alberta reported the highest average spending, \$86,910, followed by those in Ontario, where average spending amounted to \$77,310.

The largest increase in average spending per household was in Saskatchewan, where it rose 6.8% to \$68,280. Households in Newfoundland and Labrador reported the lowest average spending (\$57,710). This was up 4.9% over 2007, which was above the national average.

Basics still account for the largest shares of spending. Personal taxes accounted for 20.5% of the average household's budget in 2008, while shelter represented 19.9%, transportation 13.6% and food 10.4%. Provincially, the proportion spent on food was highest in Quebec (12.2%) and lowest in Alberta (8.9%).

Food, shelter and clothing account for over half of spending by the lowest income households. Personal taxes represented 3% of their budget. In contrast, the highest income households allocated about 28% of their budget to food, shelter and clothing, while 29% went to personal taxes.

Spending on cell phones and wireless services is still rising, but spending on reading materials such as books, newspapers and magazines is declining.

For more information, see the December 18, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Employer pension plans*

The market value of retirement savings held in employer-sponsored pension funds increased 4.5% between the first and second quarters of 2009. This was the first increase since the second quarter of 2008.

Revenues exceeded expenditures in the second quarter for a positive cash flow of \$10.6 billion. This was a reversal from the previous quarter and the first positive cash flow since the second quarter of 2008. The positive cash flow resulted primarily from significant gains on the sale of securities and a 37.2% increase in investment income compared with the first quarter of 2009.

Revenue from employer and employee contributions in the second quarter increased 8.5%, while benefits paid to retirees remained unchanged from the previous quarter.

For more information, see the December 15, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Labour productivity*

The labour productivity of Canadian businesses fell 0.2% in the third quarter of 2009, after fluctuating between increases and declines of 0.1% since the second quarter of 2008.

In each of the preceding five quarters, real gross domestic product and hours worked declined in tandem, and as a result, there was very little change in productivity during that period.

The decline in overall business productivity was mainly a result of the goods-producing business sector, which fell 0.9% in the third quarter following a 0.8% drop in the second quarter. Nonetheless, productivity in manufacturing recorded a second consecutive quarterly gain. Meanwhile, productivity in services-producing businesses continued to climb (0.2%), though at a much slower pace than in the previous quarter.

Labour costs per unit of production in Canadian dollars edged down 0.1% for Canadian businesses in the third quarter, the first drop since the first quarter of

2002, when it also declined 0.1%. This decrease follows advances of 0.1% in the second quarter and 0.8% in the first quarter of 2009.

For more information, see the December 15, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Quality of employment in the Canadian immigrant labour market*

In 2008, immigrant wages were lower and rates of involuntary part-time work, temporary employment and over-qualification were higher. For immigrants who landed in Canada more than 10 years ago, however, the indicators of quality of employment more closely resembled those of the Canadian-born.

Over 5% of both employed immigrants and Canadian born were working at more than one job. Immigrants who had multiple jobs worked longer hours overall than their Canadian-born counterparts; they worked an average of 50.0 hours, which was 2.3 hours per week more than Canadian-born multiple-job holders. This gap was particularly evident for those who landed prior to 1998.

Among part-time workers, the share of immigrants who cited working part time involuntarily (38%) was higher than Canadian-born (30%). This gap persisted regardless of period of landing, but it was widest for newly-arrived immigrants. Over 40% of immigrant workers who landed within the previous five years worked part time involuntarily, compared with 30% of Canadian-born workers.

Also, nearly 10% of immigrants were working in temporary positions, slightly more than the 8.3% of Canadian-born employees. The share of immigrants who landed within the previous five years and worked in temporary positions (16%) was nearly double that of their Canadian-born counterparts. However, the share of those who landed more than 10 years earlier in temporary jobs (7.2%) was lower than that for Canadian-born employees.

A wage gap of \$2.28 an hour was observed between Canadian-born employees in the core working-age group (25 to 54) compared with their immigrant counterparts. This gap existed regardless of when the

immigrants landed, but it was widest, at \$5.04, for immigrants who had landed within the previous five years. The gap in wages between immigrant workers and their Canadian-born counterparts was particularly wide among those with university degrees.

Union coverage was lower among immigrant employees compared to the Canadian-born. Immigrants were also more likely to be overqualified: over 40% of immigrant workers had a higher level of education for their job than what was normally required, while 28% of Canadian-born workers were similarly over-qualified.

For more information, see the November 23, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Canada's employment downturn*

Between October 2008 and October 2009, total employment fell by 400,000 or 2.3%, and the unemployment rate rose from 6.3% to 8.6%. Among the groups experiencing the heaviest employment losses during the 12-month period were workers in manufacturing and construction, young people, low-paid workers, families with young children, and core working-age immigrants who were recent arrivals in Canada.

Manufacturing and construction also experienced the largest employment declines over the first 12 months of the previous two economic downturns.

Employment among core-working age men (25 to 54) whose highest level of education was at most high school fell 5.2%, as many were employed in manufacturing and construction. Core-working age women with the same educational attainment also experienced employment losses (-3.6%).

The effect of the downturn was also different across family types. Families with children were notably affected. Single mothers with children were hit hard, with a 6.8% employment decline. As well, employment fell by 2.5% among mothers and 2.4% among fathers in two-parent families with at least one child under the age of 18.

For more information, see the November 12, 2009 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ From other organizations

■ *Growing up in a recession*

Using the U.S. General Social Survey data, this paper examines individuals' socioeconomic beliefs and attitudes, with a particular focus on people who grow up during recessions. Individuals who come of age in a recession tend to form lifelong beliefs, including that success in life depends more on luck than on effort.

Recessions have a long-lasting effect on individuals' confidence in government and its role in society. For example, individuals have a significantly lower level of confidence in Congress and the executive branch of the federal government when they experience poor economic conditions while they are coming of age. Individuals' propensity to distrust government institutions after macroeconomic shocks occur is highest when they are between the ages of 18 and 25. However, while recessions substantially decrease the confidence in government institutions, they do not appear to have an effect on the individual's level of generalized trust, i.e. one's trust in others or other sectors of society. For more information, see *Growing up in a Recession: Beliefs and the Macroeconomy*, The NBER Digest, January 2010.

■ *Intergenerational social mobility across OECD countries*

Intergenerational social mobility reflects the extent to which individuals move up or down the social ladder compared with their parents. In an economic sense, intergenerational social mobility is defined in terms of the possibility to move up or down the income or wage scale relative to one's parents. Such mobility is closely related to educational achievement, given the direct link between human capital and labour productivity.

Given the strong link between education and income, this analysis focuses on educational and wage mobility. Intergenerational mobility depends on various factors, including innate abilities and factors related to the family and social environment in which individuals grow up. Among environmental factors, some can be affected by policies such as those that shape access to

human capital formation, and redistributive policies such as tax and transfer schemes that may reduce or raise financial and other barriers to accessing higher education.

Intergenerational social mobility—as measured by mobility in earnings, wages and education across generations—is low in France, southern European countries, the United Kingdom and the United States. By contrast, such mobility tends to be higher in Australia, Canada and the Nordic countries. For more information, see *A Family Affair: Intergenerational Social Mobility across OECD Countries* (chapter 5 of part II), *Going for Growth 2010* (forthcoming), Organisation for Economic Co-operation and Development.

■ *Trust, decentralization and productivity*

Managers in almost 4,000 medium-sized manufacturing firms in the United States, Europe, and Asia were surveyed, thus providing the first international data on the decentralization of investment, hiring, production, and sales decisions from corporate headquarters to local plants. Based on these data, this study finds that social capital—defined as regional trust of other people in society—can improve aggregate productivity by facilitating greater decentralization of firms. Trust appears to facilitate delegation, with higher trust between chief executive officers and middle-managers leading to more decentralized decision making.

Countries in which firms decentralize gain economically, because it is easier for more efficient firms to grow. Also, because trust is strongly linked with more decentralization, it affects productivity.

Economies with low trust tend to specialize in industries where decentralization is less important. If some industries require high levels of decentralization in the organization—for example, complex electronics—then these industries will tend to locate in countries with high levels of trust. Greater trust also appears to encourage both cross-country trade and cross-country investment. For more information, see *The Organization of Firms across Countries*, The NBER Digest, December 2009.

Perspectives

In the works

Some of the topics in upcoming issues

■ Health factors and retirement among older workers

This study uses a longitudinal approach in attempting to fill some gaps on the relationship between early retirement and specific health factors, including health conditions, behaviours, and workplace stress.

■ Labour market activity among seniors

Using census data, this study examines employment trends among seniors. Factors associated with employment and weeks of work are explored using 2006 Census data. This study also looks at seniors' employment by industry and occupation.

■ Employment patterns of post-secondary students

This study examines employment trends among youth enrolled full-time in community college, Cegep or university, with particular focus on the recent recessionary period. Who is likely to be employed and among those who are, what are the average hours of work, average earnings and job characteristics?

■ Laid-off workers

A look at the characteristics of workers affected by layoff between 2002 and 2007 and the effects of a layoff on subsequent labour market outcomes.

■ Recent trends in temporary employment

This study looks at trends in temporary employment from 1997 to 2009, with particular focus on the recent economic downturn. It also examines the earnings gap between temporary and permanent jobs and how this gap changed with the decline in overall employment.

■ The impact of labour force aging on hours worked

This study will first look at general trends in actual hours from 1976 to 2008, then focus on more recent years in order to determine how much of the decline in work hours is attributable to aging of the workforce and whether there are differences between the public sector and the private sector. Using employment projections, the study will also examine the decline in work hours during the next five years.

■ Income in cities with high manufacturing employment concentration

A comparison of the effects of recent job losses in the manufacturing sector in regions with high, medium and low manufacturing employment concentration. This study also looks at changes in income, the number of employment insurance recipients, and the number of people living in low-income.

■ Non-tax-sheltered investments

This study will examine families with investment income from non-tax-sheltered sources of saving and present a comparative profile of "investors" and "non-investors."

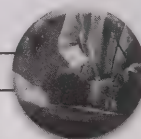
■ Job quality indicators

A look at the provincial differences in the socio-economic well-being of employed persons by occupation-education mix of factors.

Perspectives

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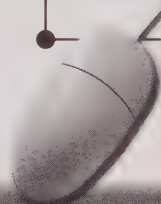
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- ⇒ Smoking and Tobacco Use Surveys
- ⇒ Health Care Survey

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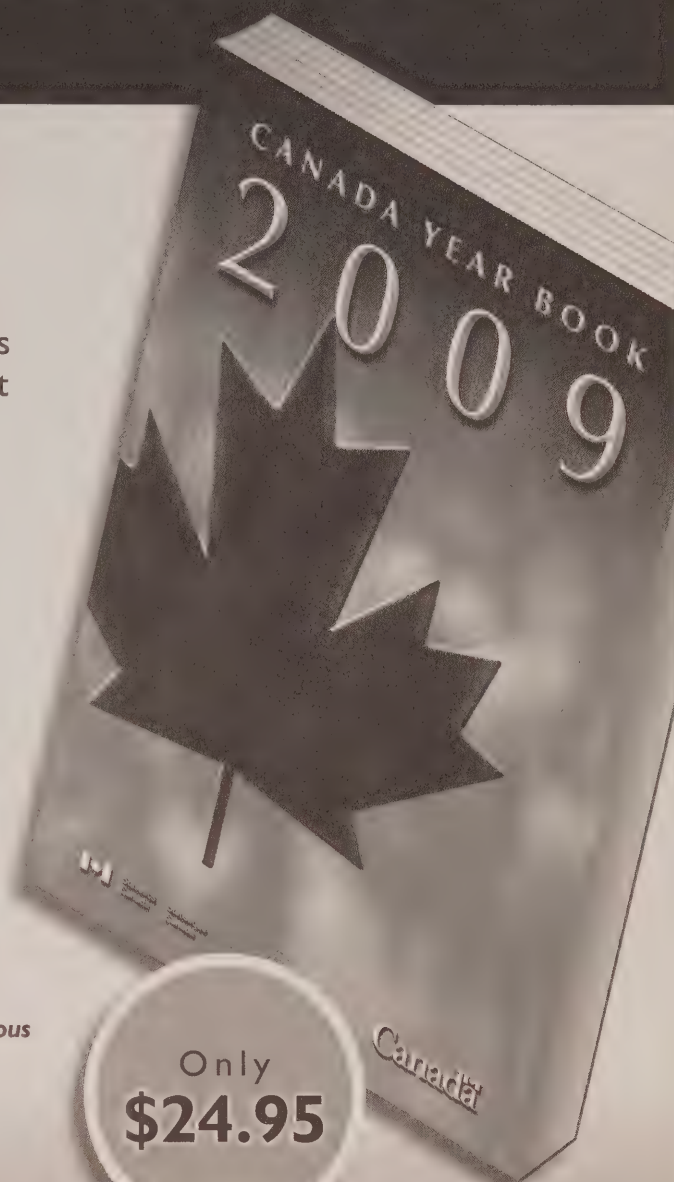
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AUTUMN 2010

Vol. 22, No. 3

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- Labour market activity among seniors
- Income in manufacturing regions
- Income replacement during the retirement years
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■ Articles

- 5 Health factors and early retirement
among older workers

Jungwee Park

This study examines associations between health factors and early exits from the labour market. Using all available cycles of the National Population Health Survey, the likelihood of workers age 40 to 52 in 1994/1995 stopping work in the subsequent 12 years is examined controlling for sociodemographic factors.

- 15 Labour market activity among seniors

Sharanjit Uppal

Most Canadians retire by the age of 65. Some, however, continue to work well into their senior years. This article uses census data to study labour market activity among senior men and women. Trends in seniors' employment rates and occupational and industrial profiles are outlined. In addition, 2006 data are used to study factors associated with employment and work intensity.

- 29 Income in manufacturing regions

Manon Langevin

The loss of manufacturing jobs can affect other sectors of the economy, particularly when local employment is heavily concentrated in manufacturing. This article covers income, low-income incidence and Employment Insurance use, in regions with varying concentrations of manufacturing employment. The article focuses on the period from 2000—the most recent peak in manufacturing employment—to 2007—the last full year of economic growth.

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- ^r revised
- x suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- ^F too unreliable to be published

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI Z39.48 – 1984.

41 Income replacement during the retirement years

Sébastien LaRochelle-Côté, Garnett Picot and John Myles

This article examines the extent to which family income of individuals in their mid-fifties is ‘replaced’ by other sources of income during the retirement years. It does so by tracking various cohorts of tax filers as they age from their mid-fifties to their late seventies. Earlier work examined this question for the 50% of the population with strong labour market attachment during their mid-fifties. This paper extends that work to include 80% to 85% of the population.

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Perspectives on Labour and Income

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Highlights

In this issue

■ **Health factors and early retirement among older workers** ... p. 5

- Among full-time workers age 40 to 52 in 1994/1995, 35% of those who negatively perceived their health had left the labour force by 2006/2007 compared with 16% of those with positive self-assessed health.
- For each additional chronic condition, there was a 25% increase in the risk of early retirement for men.
- Compared with other workers, men who consumed five or more alcoholic drinks on one occasion at least once per month or smoked daily were almost twice as likely to exit the labour force.
- Obese female workers were 1.6 times more likely than the non-obese to retire early.
- Women with high-strain jobs were almost twice as likely as their colleagues with low-strain jobs to exit the labour force early.
- Men who felt that they had low support from their supervisors had almost twice the risk of retiring early compared with those who had support.

■ **Labour market activity among seniors** ... p. 15

- Employment rates among seniors have been on the rise in recent years after registering declines in the 1980s and 1990s. Between 1996 and 2006, the rate increased from 11.8% to 14.8% for men and from 4.0% to 5.8% for women.
- Among those who also worked the previous year, many worked on a full-time, full-year basis: 41.6% of men and 30.6% of women in 2005.

- Almost one-half of working seniors were employed in the business and consumer services industries. Farmer was the most common occupation among senior men, while senior women were more likely to be employed as retail salespersons and sales clerks.
- Senior men and women at the top and bottom of the family income scale (from sources other than individual employment earnings) were more likely to be employed compared with those in the middle.
- Higher levels of education, not having activity limitations and having a mortgage were also associated with being employed.
- Among those who were employed, men and women at the bottom of the family income group were more likely to be working full year, full time (50.4% of men and 40.2% of women).
- A detailed analysis of other income sources showed that both being employed and working full year, full time were negatively associated with public pensions and private income (excluding employment income), but positively related to the earnings of other family members (usually the spouse).

■ **Income in manufacturing regions** ... p. 29

- From 2000 to 2007, median employment income decreased by just over 2% in regions with a high concentration of manufacturing employment, compared with increases of more than 10% in low-concentration regions.
- Over the same period, the number of low-income people rose nearly 6% in high-concentration regions, while it dropped 16% in low-concentration regions.

- In regions with high manufacturing concentration, job losses resulted in an increase of more than 12% in the number of people receiving EI. In contrast, low-concentration regions saw an 11% decline in EI beneficiaries over the same period.
- Persons living in regions with a high concentration of manufacturing employment were from 18% to 30% more likely to experience substantial income loss (20% or more) between 2000 and 2007 than those in low-concentration regions. Residents of small cities were more likely to experience income loss than people living in large urban centres.
- Although the decline in manufacturing had a greater impact on the incomes of manufacturing workers, it also affected the incomes of workers in other sectors. The latter also had a significantly higher risk of experiencing income loss if they were employed in a region with a high concentration of manufacturing employment.

■ **Income replacement during the retirement years** ... p. 41

- In 2006, the family income of a typical individual in his late seventies was about 80% of the same person's family income in his mid-fifties, 23 years earlier.
- Individuals who were in the bottom quintile of family income typically achieved higher replacement rates as most had replacement rates above 1.0 (or 100%) in their mid-seventies.
- Most individuals in the top income quintile had lower replacement rates, in the 0.7 range. Still, one-third of them had replacement rates above 0.8 in their mid-seventies.

- Individuals in the middle quintile typically had replacement rates closer to 0.8, but a sizeable minority—about 22%—had replacement rates no higher than 0.6
- The sources of pension income differed across income groups as well. For those who were in the bottom quintile, public pensions (Canada Pension Plan, Quebec Pension Plan, Old Age Security and Guaranteed Income Supplement) accounted for two-thirds of total family income on average in their mid-seventies. Individuals in the top quintile relied a lot more on private sources of income.
- Among middle-income Canadians, private and public sources of pension income contributed 34% and 46% of total family income before taxes, respectively.

■ **What's new?** ... p. 50

■ **From Statistics Canada**

Home equity and incomes of retirement-age households

Employment Insurance Coverage Survey

Labour productivity

Foreign nationals working temporarily in Canada

Income of Canadians

Employer pension plans

■ **From other organizations**

Multiple jobholding in the U.S. during the 2000s

Compensation costs in manufacturing

Perspectives

Health factors and early retirement among older workers

Jungwee Park

In the late 1990s, the proportion of recent retirees younger than age 60 was 14 percentage points higher than in the late 1980s (Kieran 2001) and retirement patterns have changed little in the past decade (Table 1).¹ A high rate of early retirement presents a range of challenges to public policy makers and individuals. With an aging population, early retirement may be associated with labour shortages in particular industries, occupations or geographic areas. Early retirement can also exacerbate issues related to the effective dependency ratio—the number of non-workers for every worker in a society. Early retirement may put additional pressure on publicly financed programs including health care and pay-as-you-go transfers like Old Age Security and the Guaranteed Income Supplement.

What influences people to retire early? Retirement decisions are based on many factors. The literature indicates that financial considerations are the most important determinant of retirement; that is, people retire because they are financially able to do so (Novak and Campbell 2006). As confirmed by the 2007 General Social Survey, employer-provided pension plans

Table 1 Average age of retirement

	Both sexes	Men	Women
	age		
1976	65	65	64
1981	65	65	64
1986	64	64	63
1991	63	63	62
1996	62	62	61
2001	62	62	60
2006	62	62	61
2009	62	62	62

Source: Statistics Canada, Labour Force Survey.

and individual retirement savings are the financial keystones of retirement planning.²

Besides financial capability, one's own health or the need to provide care to a family member can also be important reasons for retirement (Statistics Canada 2002). In terms of unplanned or involuntary retirement, individual workers' own health is the most important reason. In 2002, almost 30% of those who retired between age 50 and 59 indicated their health as the reason. A recent European study also found that early retirement was associated with health factors such as poor working conditions, self-perceived health, major depression, quality of life, and the number of physical symptoms (Siegrist et al.

2006). Due to health problems, many have to retire even if they are not financially ready.

Given that the health and well-being status of older workers has a major influence on the probability of remaining employed, the identification of specific health-related factors that lead to their early retirement may help frame preventive measures. A better understanding of the factors that lead to early, health-related retirement may help shape employer practices, public health policies and treatment protocols that enable workers to exercise greater control over the timing of their retirement.

Most studies on health-related retirement have focused on a limited number of health indicators like self-perceived general health obtained from cross-sectional surveys. Little is known about longitudinal effects of both subjective and objective health factors on retirement behaviour. Moreover, very few studies, especially in the Canadian context, have addressed the impact of risk factors such as health behaviours and quality of working conditions on retirement, although the effects of such factors on physical and psychological health are widely recognized.

Using 12 years of data from the National Population Health Survey (NPHS), this study examines longitudinal effects of health conditions,

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health behaviours, and workplace stress on early exits from the labour market. Two types of exit from the labour market are included in the analysis: exits due to retirement and exits due to disability or health issues. The analysis is designed to measure departures from the labour market due to both regular retirement and involuntary health-related retirement. In reality, the two types of exits are interconnected. For some older workers, becoming inactive in the labour market due to disability may lead to a permanent exit. In other words, illness and disability are important precursors of retirement (Kinsella and Gist 1995). Even when some respondents report retirement as their reason for exiting, health factors may play an important part in the decision. By combining exits due to retirement and disability together, both regular and health-related aspects of the exits from the labour force can be analyzed.

The study population includes full-time workers who were age 40 to 52 in 1994/1995 and had valid re-interviews every two years until 2006/2007. The NPHS provides detailed health-related information for a large number of respondents, which includes

both subjective and objective measures of disability and health status (see *Data source and definitions*). Although the NPHS does not contain detailed questions on income- and labour force-related subject matters,³ the survey provides basic information on labour force status. Since the NPHS is a monitoring tool for the general population, the sample of individuals passing through the early retirement window is also relatively small. Given the limitations of health-related information in most labour and income surveys, however, the NPHS may be the best data source for studies delving into the relationship between health and retirement in the Canadian context (cf. Campolieti 2002).

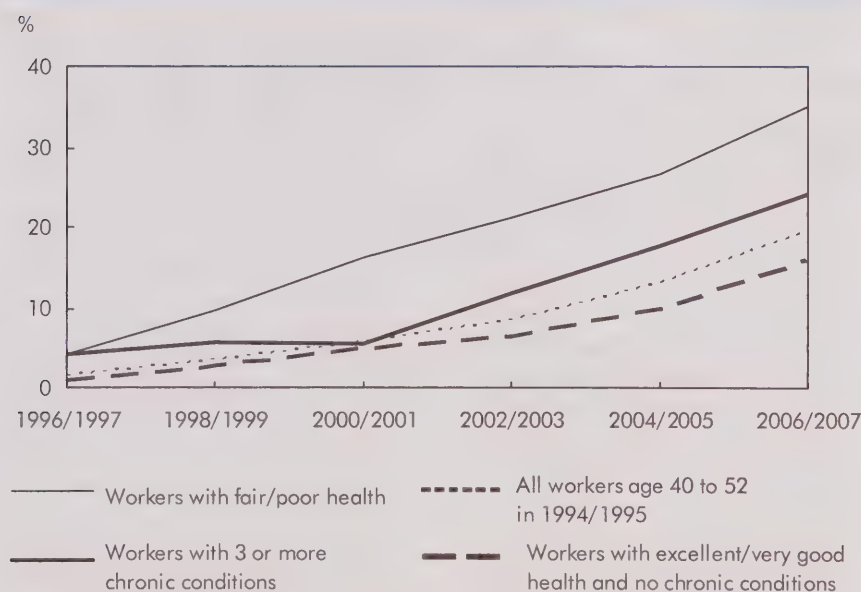
Health and exits from the labour force

By 2006/2007, one in five full-time workers who were age 40 to 52 in 1994/1995 had exited the labour force (Chart A). The reasons for exit can range from retirement⁴ or disability to personal or family responsibilities. The biennial exit rate was steeper during the latter part of the 12-year study period as workers aged and approached the end of their careers.⁵ However, the

age curve is more pronounced among workers with health problems as a higher proportion of them exited employment each survey year, compared with healthier workers. The percentage differences for being out of the labour force between healthy and less healthy workers also grew over time. Clearly, individuals with health problems were most likely to stop working early. Although everyone in the sample was working full time at the start of the study period, within 12 years 35% of workers who negatively perceived their health had stopped working, as had 24% of those diagnosed with 3 or more chronic conditions. Similarly, the labour force exit rate was consistently lower for healthy workers without chronic conditions each survey year and, after 12 years, only a total of 16% were without a job.

Health status is also a related reason for exit from the labour market. In 2006/2007, almost one-half of workers with poor health who

Chart A Workers with health problems more likely to exit labour market early



Source: Statistics Canada, National Population Health Survey.

stopped working indicated the main reason was illness or disability. Among those in good health, almost 80% reported retirement as the main reason for leaving the labour market and less than 10% cited illness or disability (Chart B). Compared with healthy individuals, a smaller portion of those with health problems withdrew from the labour force due to other reasons such as caring for family members, personal responsibilities, education leave, paid leave, layoff, looking for work, and pregnancy.

Modeling early exits from the labour market

On the surface, health problems seem clearly linked with early exits from the labour force. But both health status and labour market exits may correlate with other sociodemographic variables. For example, those who were older at the start of the study may be more prone to chronic conditions compared with those who were younger. Multivariate modeling can be used to assess the relationship between health status and retirement while controlling for such factors. Control variables in the model are age, place of residence, province, family characteristics, immigration status, household income adequacy, class of employment, highest level of schooling, and occupation.

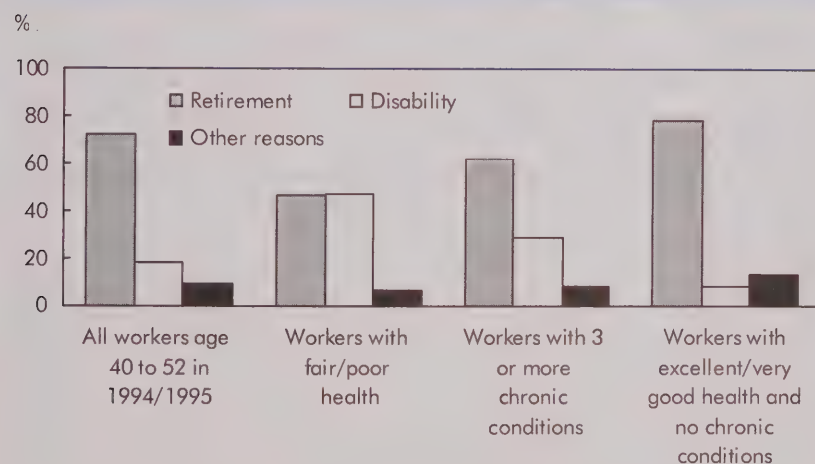
A survival model is employed to examine longitudinal associations between health factors and retirement (see *Data source and definitions*). The model estimates adjusted proportional hazard ratios for retirement between 1996/1997 and 2006/2007 while controlling for sociodemographic factors. Hazard ratios are used to estimate relative risks of the probability of the event occurring in a specific group versus those not in that group. The survival model in this analysis estimates risk ratios for early retirement. This model is constructed to include both regular and health-related exits from the labour market. Older workers who leave the labour market because of illness or disability are treated as retirees based on the assumption that they have departed permanently (Hayward et al. 1998). Serious illnesses or disabilities, particularly among those nearing the end of their careers, are likely to lead to a permanent exit from the labour market. Cases of not working due to other reasons were censored (see *Data source and definitions* for more details).

Health status and early retirement

To measure the effects of health status, indicators of both subjective and objective health were examined. The analysis includes information based on a five-category scale of self-perceived health and the number of chronic conditions. The number of chronic conditions⁶ was included to capture the effect of objective health status and minimize potential biases of self-assessment of health. Subjective health measures may be affected by a social desirability bias⁷—retirees may be claiming poor health in order to justify reduced labour force involvement (Bazzoli 1985). People who enjoy their work are likely to downplay their health problems and work longer, while those who dislike their work may exaggerate health problems and retire sooner (Dwyer and Mitchell 1999).

The effects of individual health status on early retirement were found to be statistically significant. The self-perceived health of men was related to their likelihood of departing from the workforce early. Compared with individuals who perceived their health as excellent,

Chart B Higher proportion of workers with health problems exit labour market due to disability



Source: Statistics Canada, National Population Health Survey, 2006/2007.

Compared with individuals who perceived their health as excellent,

Data source and definitions

The **National Population Health Survey** (NPHS) collects health information from private households and institutional residents in the 10 provinces, except from residents living on Indian reserves and Armed Forces bases, and in some remote areas.

For each of the first three cycles (1994/1995, 1996/1997 and 1998/1999), two cross-sectional files were produced: general and health. The general file has sociodemographic and some health information for each household member. The health file contains additional, in-depth information on one randomly selected household member. Starting in 2000/2001, the NPHS became strictly longitudinal, and the two questionnaires were combined.

In addition to the cross-sectional information, a longitudinal file was produced at baseline (1994/1995). In 1994/1995, a member from each participating household was randomly selected and the resulting panel of 17,276 was followed over time. Response rates were 92.8% in 1996/1997, 88.3% in 1998/1999, 84.9% in 2000/2001, 80.8% in 2002/2003, 77.6% in 2004/2005 and 77.0% in 2006/2007.

In this analysis, all seven cycles of the NPHS were used. Those age 40 to 52 who indicated their pattern of working hours in the past 12 months as one full-time job, only full-time at all jobs, or some full-time and some part-time at baseline ($n=1,339$) were selected for analysis. Only individuals completing all seven cycles and who either stayed in the workforce or retired (or became disabled) in subsequent cycles were selected. Excluded from the model are all individual time units in which events other than the one of interest occurred (the competing risks approach) to focus entirely on the event of interest. For instance, cases of exits due to other reasons were dropped from the model.

A survival analysis model is employed to provide adjusted proportional hazard ratios of retirement between 1996/1997 and 2006/2007 while controlling for various sociodemographic confounders such as age, place of residence, immigration status, family characteristics, income adequacy, educational attainment, class of employment (self-employed/employee), and occupation. The proportional hazards model allows timing of events and their association with various characteristics to be studied. For example, if a respondent reported that she was not working because of her retirement or disability after 1994/1995, this was considered an event. With this method, each individual's event history is broken down into a set of discrete time units (i.e., NPHS cycles) that are treated as distinct observations. After pooling these observations, the next step is to estimate a binary regression model predicting whether an event did or did not occur in each time unit (Allison 1995). Many covariates in this analysis are not constant through the whole study period. For example, self-perceived health may change over time and the risk of retirement in 2006/2007 was related to health status in 2004/2005 rather than the baseline. Thus, those time-varying factors in the model were allowed to change over the period. Time-dependent covariates included in the model were self-perceived health status, chronic conditions, presence of children under 13 (yes/no), marital status (married/not married), place of residence, income adequacy, class of employment, occupation and province, and work stress indicators. On the other hand, only values at baseline were used for age, sex, place of birth, and education. As well, time elapsed since the first cycle (in terms of number of cycles) was included as a continuous variable to correct for the greater chance of retirement with the passing of time. For each person-year, that variable ranged from 1 to 6.

To account for the survey design effects of the NPHS, coefficients of variation and p-values were estimated and significance tests were performed using the bootstrap technique. The significance level was set at $p < 0.05$.

Early retirement comprises the retirement of full-time workers age 40 to 52 in 1994/1995 over the 12-year period that followed. Possible retirement ages of the study population range from 42 to 64. If respondents indicated that they were not currently working and specified their main reason for not working for pay or profit was retirement, or own health or disability, they were considered to have taken early retirement.

To measure **work stress**, the NPHS employed an abbreviated version of Karasek's Job Content Questionnaire (JCQ) (Karasek 1979). The NPHS measured the work stress of respondents who worked at a job or business in the preceding 12 months. Twelve items in the JCQ (for detail measurements, see Park 2007) were used to measure job control, psychological demands, job insecurity, physical exertion and social support at the workplace. The job-strain ratio was calculated by dividing the adjusted score for psychological demands by that of job control. A small constant (0.1) was added to the numerator and denominator to avoid division by 0. To deal with outliers, scores greater than 3 were set to 3. Respondents were classified as being in **high job strain** if the ratio was 1.20 or higher; **medium job strain** if the ratio was between 0.81 and 1.19; and **low job strain** if the ratio was 0.80 or lower.

Respondents who answered "strongly disagree" or "disagree" to the statement, "your job security is good" were classified as having **job insecurity**.

Respondents who answered "strongly agree" or "agree" to the statement, "your job requires a lot of physical effort" were classified as having **physical exertion**.

Respondents were classified as having **low co-worker support** at the workplace if they either agreed or strongly agreed with being exposed to hostility or conflict from the people at work or disagreed or strongly disagreed with co-workers being helpful in getting the job done. Respondents were regarded as having **low supervisor support** if they disagreed or strongly disagreed with supervisors being helpful in getting the job done.

Additionally, respondents were asked if they were "very satisfied," "somewhat satisfied," "not too satisfied" or "not at all satisfied" with their jobs. Those who answered "not too satisfied" or "not at all satisfied" were classified as having **job dissatisfaction**.

Heavy drinking was measured by asking respondents the number of times in the past year they had had 5 or more alcoholic drinks on one occasion. Having done so at least once per month (or 12 or more times in the past year for cycle 1) was classified as heavy monthly drinking.

Daily smokers were defined as those who smoked cigarettes every day.

Body mass index (BMI) is calculated by dividing weight in kilograms by height in metres squared. **Obesity** (a BMI of 30 or more) for people age 18 or older was identified.

Physical inactivity was based on total accumulated energy expenditure (EE) during leisure time. EE was calculated from the reported frequency and duration of all of a respondent's leisure-time physical activities in the three months before the interview and the metabolic energy demand (MET value) of each activity, which was independently established. An EE of 3 or more K/K/D (kilocalories per kilogram of body weight per day) was defined as high, 1.5 to 2.9 was moderate, and less than 1.5 was low. Respondents with high or moderate EE were considered **physically active**, while those with low EE were considered **inactive** (for more details, see Statistics Canada 1995 and Stephens et al. 1986).

men with negative self-perceived health (poor or fair) were almost five times more likely to stop working (Table 2). Although the propensity for female workers with less positive subjective health to exit the labour market was estimated to be greater than for women with excellent health, this result fell just above our significance threshold ($p=0.07$ versus a threshold of 0.05). The number of chronic conditions was also associated with an early exit for men: for each additional chronic condition, there was a 25% increase in the risk of early departure. Eye problems, back pain, ulcers, and migraines were particularly likely to increase the relative risk of early retirement (data not shown). These findings of health effects on workers' retirement behaviour are consistent with previous research. For instance, Dwyer and Mitchell (1999) suggested that men in poor overall health in the United States were expected to retire one to two years earlier.

Table 2 Adjusted¹ health status risk ratios for not working due to retirement or disability

	Both sexes	Men	Women
		ratio	
Self-perceived health			
Excellent (ref.)	1.00	1.00	1.00
Very good	1.18	1.37	1.03
Good	1.60*	1.59	1.65
Fair or poor	3.46*	4.72*	1.54
Number of chronic conditions	1.17*	1.25*	1.05

* significantly different from reference group (ref.) at the 0.05 level

1. Adjusted for age, place of residence, marital status, household income adequacy, class of employment, highest level of schooling, and occupation.

Source: Statistics Canada, National Population Health Survey, 1994/1995 to 2006/2007.

Additional analysis on labour market exits due to retirement only found that neither self-perceived health status nor the number of chronic conditions significantly affected the risk of early exit from the labour market. Previous research suggests that health status may not be as important to voluntary retirement as to involuntary retirement (Lachance and Seligman 2009, and Szinovacz and Davey 2005). The results of this study are consistent with that interpretation.

Health behaviour and early retirement

It is well-known that problem drinking is associated with a greater prevalence and incidence of limitations in home and work tasks in a near-elderly population (Ostermann and Sloan 2001, and Mullahy and Sindelar 1996). Alcohol consumption has been associated with many types of physical, psychological and cognitive impairments. Heavy drinking increases accidents and injuries, and may lead to liver and heart damage. The consequences of excessive alcohol consumption could reduce a worker's labour market productivity and reliability (Mullahy and Sindelar 1996). In this analysis, the effect of heavy drinking on labour force exits was significant for men (Table 3). Compared with other workers, heavy drinkers (those who consume five or more alcoholic drinks on one occasion at least once per month) were almost twice as likely to exit the labour force early.

Obesity can affect employment decisions directly by creating functional disabilities or indirectly by aggravating or actually causing other health ailments, which can in turn affect employment status (Renna and Thakur 2006, and Houston et al. 2009). Although the general health effect of obesity may apply to all age groups, obesity among older workers, in particular, plays an important role as a catalyst in their labour market exit decisions. Obesity among older women was related to earlier retirement compared with workers without this condition. Obese workers were 1.6 times more likely than the non-obese to retire early.

Table 3 Adjusted¹ health behaviour risk ratios for not working due to retirement or disability

	Both sexes	Men	Women
		ratio	
Daily smoking	1.40*	1.68*	1.16
Physical inactivity	0.93	0.90	1.04
Obesity	1.41*	1.36	1.62*
Heavy drinking	1.95*	1.95*	2.67

* significantly different from those who do not have a given health behaviour at the 0.05 level (e.g., obese versus non-obese people)

1. Adjusted for age, place of residence, marital status, household income adequacy, class of employment, highest level of schooling, and occupation.

Source: Statistics Canada, National Population Health Survey, 1994/1995 to 2006/2007.

In addition, men who smoked daily had a significantly higher risk of early exit from the labour force. Daily smokers were 1.7 times more likely than others to retire early. Previous research has also found a relationship between the number of cigarettes smoked daily and early retirement rates (Rothenbacher et al. 1998). The risk of early retirement was greatest among workers smoking 30 or more cigarettes per day. However, the true impact of smoking behaviour may be underestimated due to a healthy smoker effect (Husemoen et al. 2004). Some smokers may exit the labour market (due to death or disability) quite early in their life course, therefore only smokers who were healthy enough to stay employed at the start of the study period were included for analysis.

Smoking and obesity tend to have an impact on early retirement by affecting health status. When health status was controlled for in an additional regression model, the effects of these two conditions disappeared. Even after controlling for self-perceived health, heavy drinking still had a significant effect on early exits from the labour market. Therefore, heavy drinking seems to have a direct effect on early retirement.

Work stress factors and early retirement

Various indicators of work stress were included to examine the effect of job quality or workplace well-being on early retirement from the labour force. The indicators include job strain, job dissatisfaction, social support at the workplace (from co-workers and supervisors), physical demands, and job insecurity.

Job strain significantly increased the likelihood of early exit for women. Women with high-strain jobs were almost twice as likely as their colleagues with low-strain jobs to exit the labour force early (Table 4). Job strain is determined by the interactions between the level of psychological demand (how mentally demanding a job is) and that of decision latitude (how much control workers have in their jobs). When older workers feel that the psychological demands of their jobs are too high, and/or the job control is too limited, the risk of early retirement tends to increase. These findings are consistent with previous research which shows that early retirement is related to environmental factors at the workplace and that women are more affected than men (Christiansen and Nielsen 2009).

Table 4 Adjusted¹ work stress risk ratios for not working due to retirement or disability

	Both sexes	Men	Women
	ratio		
Job strain			
High	1.78*	1.52	1.81*
Medium	1.08	1.02	1.04
Low (ref.)	1.00	1.00	1.00
Job dissatisfaction	1.62*	1.52	1.60
Low co-worker support	1.02	0.93	1.01
Low supervisor support	1.58*	1.80*	1.40
Physical demands	1.27	1.53*	0.97
Job insecurity	1.15	1.55	0.80

* significantly different from reference group (ref.) at the 0.05 level

1. Adjusted for age, place of residence, marital status, household income adequacy, class of employment, highest level of schooling, and occupation.

Note: To address possible colinearity problem, each indicator of work stress was analyzed in a separate model.

Source: Statistics Canada, National Population Health Survey, 1994/1995 to 2006/2007.

The effects of job strain were similar but not statistically significant for men's retirement.⁸ For male workers, however, supervisors' support at the workplace seemed to be an important factor in avoiding early retirement. Men who felt that they had low support from their supervisors had almost twice the risk of retiring early compared with those who had support. As Lin and Hsieh (2001) indicate, the perception of positive evaluations from bosses or supervisors can moderate the relationship between job stress and withdrawal behaviours of employees.

Not surprisingly, job dissatisfaction is related to early retirement. A decrease in overall job satisfaction is found to be one of the most important factors affecting the increase in intentions to retire (Sibbald et al. 2003). In this analysis, dissatisfied workers were 62% more likely than satisfied workers to stop working early, before age 65.

For men, having a physically demanding job increased the risk of retirement by 53%. Previous research has linked conditions of physical work strain with the decision to retire. These conditions include repetitive or continuous strain, musculoskeletal strain, and uncomfortable working positions such as crouching, bending, twisting or being fixed (Lund and Villadsen 2005).

These findings show a close association between one's job quality and the likelihood of early departure from the workforce. Both psychosocial and physical aspects of job quality affect early labour force exits.

Although not presented in the tables, the effects of various socio-economic variables on retirement were consistent with previous studies (Turcotte and Schellenberg 2005). For example, the likelihood of retirement was higher for workers who were older at the start of the period. Compared with paid employees, the self-employed were less likely to retire early. As well, workers in Quebec were more likely to stop working early than those in Ontario. Compared with managers and professionals, blue-collar women tend to exit the labour force early.

Conclusion

With an aging population, older workers are becoming an increasingly larger part of the labour force. Policy makers and employers are becoming more focused on the retention of older workers. And for older workers themselves, control over the timing and circumstances of their retirement is critical to their economic well-being.

This article examined specific associations between various health factors and early departure from the labour market. It made use of the National Population Health Survey, which followed individual respondents for 12 years. Although the sample size for the population of interest was quite small, the richness of the data related to a range of health indicators and workplace factors yielded a number of significant results.

It was found that subjective and objective measures of health status were related to the early exit of men from the labour market. Some health behaviour factors also affect the decision to retire early (obesity for women, and heavy drinking and daily smoking for men). As well, the quality of working conditions was found to have significant effects on retirement behaviour. For instance, high psychological demands and low job control tend to shorten women's careers whereas low support from a supervisor was associated with men's early retirement.

The findings of this study imply that health-related habits of individual workers may affect their retirement decisions and, thus, have financial implications.

Therefore, public health policies and programs can potentially play a role in the labour force participation and personal finances of older workers. As well, workplace health programs should be of interest to employers with an aging workforce. Providing a safe, healthy and stimulating work environment seems to minimize early involuntary departures.

Perspectives

■ Notes

1. A slight increase has been observed in the past decade.
2. Those with pension coverage are about 10 percentage points more likely to be certain about their planned age of retirement than those with no pension coverage, and pension plan members expect to retire about 13 months earlier than non-members (Schellenberg and Ostrovsky 2008).
3. The Canadian Community Health Survey (CCHS) – Healthy Aging, cycle 4.2, may help fill this data gap. This upcoming cycle includes extensive questions on retirement as well as detailed health information.
4. As expected, the proportion of those who indicated retirement as the main reason for exit from the labour force increased over the cycles. In 2006/2007, it accounted for 72% of all exits compared with only 19% in 1996/1997.
5. Only 9% of those who exited the labour market in this analysis were younger than 50 when they left the labour force, 67% were in their 50s, 17% between 60 and 62, and 6% between 63 and 64 (data not shown).
6. The number of chronic conditions was calculated based on respondents' answers to questions about whether they had been diagnosed by professionals as having any of 15 chronic conditions (i.e., asthma, arthritis, high blood pressure, back problems, migraines, epilepsy, bronchitis, diabetes, stroke, heart disease, cancer, ulcers, urinary incontinence, Alzheimer's disease, and eye problems [cataracts and glaucoma]).
7. As the NPHS is not a survey on retirement, respondents' answers on self-perceived health may not be affected by their retirement status as much as it would have been in a survey focused on retirement.
8. The small sample size likely contributed to a test statistic just above the threshold ($p=0.07$ versus 0.05).

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Labour market activity among seniors

Sharanjit Uppal

In Canada, 65 remains the standard retirement age in the sense that full public pension benefits are available given work and residence requirements.¹ However, a number of policy changes have been made to lower barriers for seniors who wish to remain in the labour market. For example, mandatory retirement has been eliminated in most jurisdictions and the earned income exemption for the Guaranteed Income Supplement was recently raised. Other than policy makers, senior labour supply may be of interest to employers who have concerns about issues like knowledge transmission and skill shortages.

Despite the prominence of these issues, relatively little is known about how key factors such as education, health and financial status relate to senior labour market activity. Even though other studies have been devoted to the labour supply of individuals past the traditional retirement age of 65 (Duchesne 2002 and 2004, Haider and Loughran 2001, Walsh 1999, and Blau and Riphahn 1999),² recent information on the labour market participation of seniors in Canada is sparse.³

This study has three major objectives. First it provides detailed trends on the labour market activity of seniors by calculating employment rates among those at least 65 years of age and examining their industrial and occupational profiles. Next it examines the factors that may be associated with labour market participation after age 64. And, finally, it looks at the intensity of work and the characteristics associated with full-year, full-time hours reported by seniors. The study uses census data, the census being the only data source with an adequate sample size and a wide enough range of information to allow a detailed examination of senior workers.

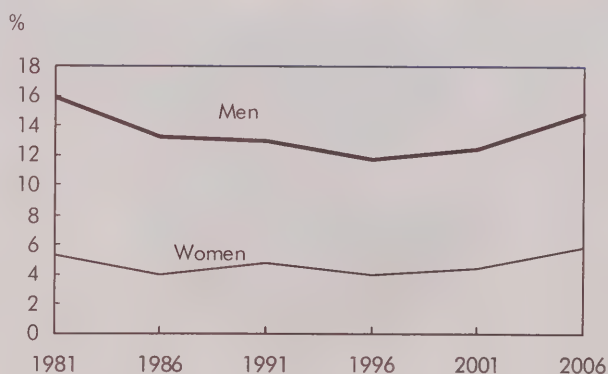
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Seniors' employment rates

In 2006, about 1 in 10 seniors participated in the labour market. Participation was higher for men (14.8%) than women (5.8%). These compare to rates of 15.9% for men and 5.3% for women in 1981 (Chart A).

The long-term trends in seniors' employment can be broken down into three periods: a period of significant decline (1981 to 1986), a period of relatively stable rates (1986 to 1996), and a period of increasing employment rates (1996 to 2006). For men, the rate fell by 2.6 percentage points between 1981 and 1986, followed by smaller declines in the next 10 years to reach 11.8% in 1996. Subsequent increases in the next two census years brought the employment rate for senior men to almost 15% in 2006. For senior women, the employment rate oscillated between 4% and 6% over the period ending with a gain of 1.4 percentage points between 2001 and 2006.⁴

Chart A Employment rates among seniors

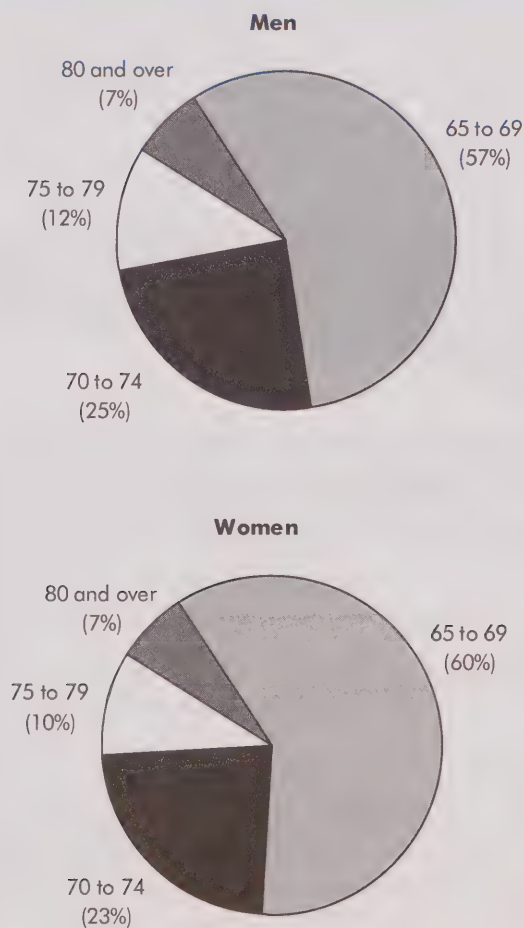


Source: Statistics Canada, Census of Population.

Among all employed seniors, 65- to 69-year-olds accounted for 56.5% of employed men and 60.1% of employed women (in 2006), while 70- to 74-year-olds accounted for an additional 24.5% and 23.0% for men and women, respectively (Chart B). Those 75 to 79 constituted 11.9% of the employed among men and 10.0% among women. Men and women 80 and over represented approximately 7% of employed seniors.

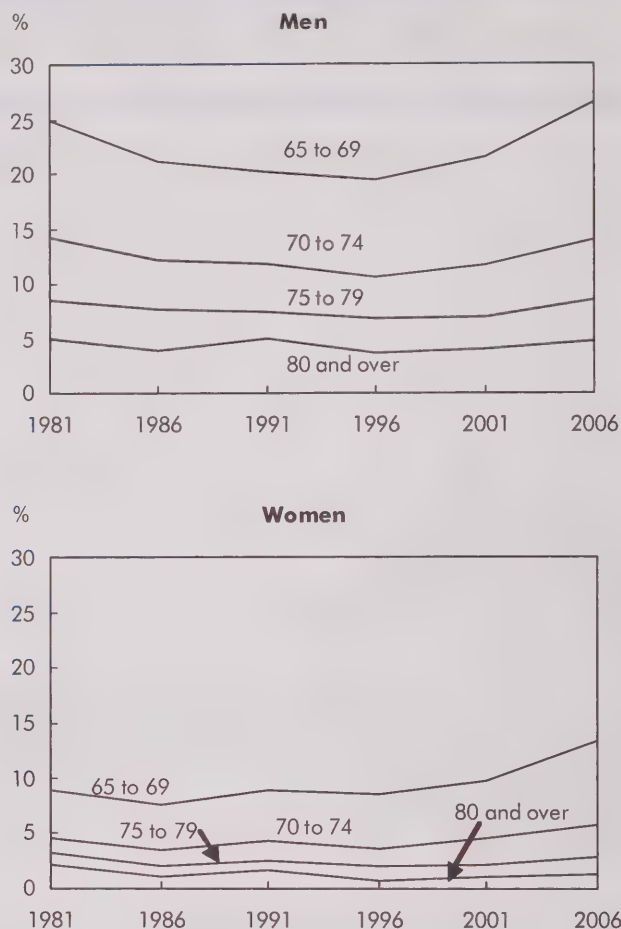
Among seniors, labour market participation generally declines with age. Men age 65 to 69 had higher rates of employment than their older counterparts in all years

Chart B Distribution of employment among seniors by age group



Source: Statistics Canada, Census of Population, 2006.

Chart C Employment rates among seniors by age group



Source: Statistics Canada, Census of Population.

and also showed the largest recent increase between 2001 and 2006: 5.1 percentage points (Chart C). Over the entire 1981 to 2006 period, employment rates increased much faster for women age 65 to 69 than for any other group.

Employment rates typically decline by 40% to 50% for men and 50% to 60% for women from their late 60s to their early 70s. In 2006, men age 70 to 74 had nearly the same employment rate as in 1981 following earlier losses and more recent gains. Women in this age group increased their employment rate by 1.2 percentage points over the 25-year span. Employment

Table 1 Employment by industry, senior versus prime-age workers

	Men		Women	
	25 to 64	65 and over	25 to 64	65 and over
	%			
Primary goods	5.8	17.1	2.3	11.1
Manufacturing	17.7	8.3	8.4	5.2
Construction and utilities	12.0	8.6	2.2	2.3
Transport	6.6	5.5	2.1	1.8
Consumer services	25.6	28.8	28.8	36.4
Business services	16.9	20.6	18.3	17.7
Education	5.0	3.6	11.4	7.6
Health	3.9	4.7	19.9	14.8
Public administration	6.5	2.8	6.5	3.1

Source: Statistics Canada, Census of Population, 2006.

rates were lower for workers age 75 and over and did not vary significantly in the 25-year period.

Many seniors working in consumer services

Older workers were concentrated in a few industries (Table 1).⁵ Among men, three industries were of particular importance as they employed two-thirds of all working seniors: consumer services, business services and primary goods. Of the three, consumer services had the largest share of seniors as 28.8% of working men were employed in this industry in 2006. Among older women, more than two-thirds were employed in consumer services, business services or health-related industries with consumer services accounting for 36.4% of employment.

Senior men and women were not necessarily employed in the same industries. The male-female gap was the most predominant in the health sector as 14.8% of employed women were working in this industry in 2006 compared with only

4.7% of employed men. In contrast, men were more likely to be employed in primary goods, and in construction and utilities.

The industrial profile of senior workers in 2006 was also quite different from that of younger workers. Senior men were much more likely to be employed in primary goods (17.1% for seniors versus 5.8% for younger workers), whereas men age 25 to 64 were

much more likely to be working in manufacturing (17.7% for younger workers versus 8.3% for seniors) and in public administration (6.5% for younger workers versus 2.8% for seniors). Among women, seniors had a much higher likelihood of being employed in primary goods (11.1% for seniors versus 2.3% for younger workers) and in consumer services (36.4% for seniors versus 28.8% for younger workers), but were less likely to work in public administration (3.1% for seniors versus 6.5% for younger workers).

There were also significant changes in the concentration of senior workers across industries between 2001 and 2006 (Table 2).⁶ Although consumer services was the largest employer of senior men in both years, other categories varied in importance over the period. Primary goods industries lost the most ground as its share declined by 5.6 percentage points between 2001 and 2006. In contrast, construction and utilities recorded the largest gain (1.4 percentage points). Among employed senior women, health-related industries recorded

Table 2 Senior employment by industry, 2001 versus 2006

	Men		Women	
	2001	2006	2001	2006
	%			
Primary goods	22.8	17.1	16.7	11.1
Manufacturing	8.3	8.3	5.7	5.2
Construction and utilities	7.2	8.6	2.1	2.3
Transport	4.4	5.5	1.3	1.8
Consumer services	27.7	28.8	35.6	36.4
Business services	19.4	20.6	16.7	17.7
Education	2.7	3.6	6.7	7.6
Health	4.5	4.7	12.5	14.8
Public administration	3.0	2.8	2.9	3.1

Source: Statistics Canada, Census of Population.

the biggest gain as their share increased by 2.3 percentage points over the period. In contrast, the share of senior women working in primary goods industries decreased by 5.6 percentage points between 2001 and 2006.

Farmer still the most common occupation for senior men

Among working senior men, the top occupation was farmer and farm manager, with 11.5% of seniors employed in this group in 2006 (Table 3). This differed from men age 25 to 64 as farmers and farm managers represented only 1.6% of the workforce for this group. The second most common occupation for senior men was retail salesperson and sales clerk, employing 3.8% of working men in 2006. The third and fourth most frequent occupational categories were truck driver and janitor, caretaker and building super-

intendent, at 2.9% each. Among women, the top occupation was retail salesperson and sales clerk (6.6% among seniors versus 3.8% among prime-age workers).

Working seniors were more concentrated in a few occupations compared with younger workers. Among senior men, for example, the top five occupations accounted for 23.7% of employment compared with 12.3% among workers age 25 to 64. Occupational concentration was also much higher among senior women as almost 26% of employed women age 65 and over were concentrated in the top five occupations, compared with about 18% among younger women.

Significant changes also occurred in the occupational profile of seniors between 2001 and 2006 (Table 4). First, the concentration decreased over the period as the top 25 occupations employed 50.4% of working men in 2006 (compared with 53.6% in 2001). Among women, the proportion fell from 62.3% to 59.8% over the same period. The decrease in the concentration of older workers among farmers and farm managers was particularly noticeable. Between 2001 and 2006, the proportion of older men employed in this category fell from 17.6% to 11.5%. Among women, this proportion fell from 10.1% to 6.1%. The share of senior women increased in many other occupations, including retail salespersons and sales clerks, secretaries (except legal and medical) and nurses. Hence, the occupational profile of older workers has become more diverse.

Table 3 Top 5 occupations, seniors versus prime-age

Men	%
25 to 64	
Truck drivers	3.7
Retail salespersons and sales clerks	2.6
Retail trade managers	2.5
Janitors, caretakers and building superintendents	1.8
Automotive service technicians, truck and bus mechanics and mechanical repairers	1.7
65 and over	
Farmers and farm managers	11.5
Retail salespersons and sales clerks	3.8
Truck drivers	2.9
Janitors, caretakers and building superintendents	2.9
General farm workers	2.6
Women	
25 to 64	
Retail salespersons and sales clerks	3.8
Registered nurses	3.8
Secretaries (except legal and medical)	3.4
General office clerks	3.4
Elementary school and kindergarten teachers	3.3
65 and over	
Retail salespersons and sales clerks	6.6
Secretaries (except legal and medical)	6.5
Farmers and farm managers	6.1
Bookkeepers	3.8
General office clerks	2.9

Source: Statistics Canada. Census of Population, 2006.

Descriptive overview of factors associated with employment

Among factors that can be expected to be associated with seniors' employment, four may be of particular significance (see *Data source and definitions*). They are financial status (family income other than individual employment income, adjusted for family size), educational attainment, health status (proxied by activity limitation information), and financial obligations (proxied with a mortgage payment indicator).

Past research indicates that financial resources do not necessarily have a straightforward relationship with work among older workers. The relationship varies according to the level and other sources of income. At the lower end, those with low levels of income other than individual earnings might have to work to maintain a minimum standard of living. At the other

Table 4 Top 25 occupations for employed seniors

	2001	2006
	%	
Men		
Farmers and farm managers	17.6	11.5
Retail salespersons and sales clerks	2.6	3.8
Truck drivers	2.1	2.9
Janitors, caretakers and building superintendents	2.8	2.9
General farm workers	2.5	2.6
Retail trade managers	3.4	2.4
Security guards and related occupations	2.0	2.0
Sales representatives, wholesale trade (non-technical)	1.8	1.7
Financial auditors and accountants	1.6	1.6
Bus drivers and subway and other transit operators	1.1	1.5
Senior managers - goods production, utilities, transportation and construction	1.3	1.4
Real estate agents and salespersons	1.3	1.3
Ministers of religion	1.3	1.2
Senior managers - financial, communications and other business services	1.2	1.2
Senior managers - trade, broadcasting and other services, n.e.c.	1.2	1.2
Taxi and limousine drivers and chauffeurs	...	1.2
Delivery and courier service drivers	1.0	1.2
Lawyers and Quebec notaries	1.1	1.2
Carpenters	1.1	1.2
General practitioners and family physicians	1.3	1.1
Property administrators	1.2	1.1
Landscaping and grounds maintenance labourers	0.9	1.1
Automotive service technicians, truck and bus mechanics and mechanical repairers	...	1.0
Sales, marketing and advertising managers	1.0	1.0
Specialist physicians	0.8	1.0
Construction managers	0.9	...
Restaurant and food service managers	0.9	...
Women		
Retail salespersons and sales clerks	5.3	6.6
Secretaries (except legal and medical)	6.1	6.5
Farmers and farm managers	10.1	6.1
Bookkeepers	4.4	3.8
General office clerks	2.9	2.9
Light duty cleaners	2.6	2.8
Registered nurses	1.5	2.7
Retail trade managers	2.7	2.2
General farm workers	3.4	2.1
Visiting homemakers, housekeepers and related occupations	1.6	2.1
Administrative officers	1.5	2.0
Babysitters, nannies and parents' helpers	3.1	1.9
Receptionists and switchboard operators	1.6	1.9
Cashiers	1.2	1.7
Accounting and related clerks	1.5	1.6
Real estate agents and salespersons	1.2	1.5
Elementary school and kindergarten teachers	...	1.4
Early childhood educators and assistants	1.5	1.4
Janitors, caretakers and building superintendents	1.6	1.4
Food counter attendants, kitchen helpers and related occupations	1.3	1.4
Nurse aides, orderlies and patient service associates	...	1.3
Property administrators	1.3	1.2
Other elemental sales occupations	1.5	1.2
Cooks	1.2	1.2
Financial auditors and accountants	1.2	1.0
Musicians and singers	1.3	...
Accommodation service managers	0.9	...

Source: Statistics Canada, Census of Population, 2001 and 2006.

Data source and definitions

Census data on men and women, 65 years of age and over, for the years 1981, 1986, 1991, 1996, 2001 and 2006 were used in the study. The choice of census as a data source was predominantly motivated by a need for a detailed analysis and the accompanying requirements of relatively large sample sizes for various sub-groups. The census is conducted every five years. Four-fifths of households receive the short form, which asks for basic information only. The remaining 20% of households receive the long form which, in addition to the basic information, also asks more detailed questions on matters including labour market activities. The 20% sample information is later weighted to represent all Canadians.

Variable definitions

Employed: a person is considered employed if he or she had a job in the reference week (week preceding the census)—includes persons who were temporarily absent for the entire week because of vacation, illness, a labour dispute at work, maternity/parental leave, bad weather, fire or family responsibilities, or for some other reason.

Employment rate: the number of employed persons expressed as a percentage of the relevant population.

Employee: a person paid for work via wages, salary, tips or commission.

Self-employed: includes individuals who had a job in the reference week and were self-employed without paid help and not incorporated; self-employed with paid help and not incorporated; or paid workers who were incorporated business owners with or without paid help.

Unpaid family worker: a person working without pay for a relative in a family business or on a farm.

Work activity: based on data prior to the census year as data on weeks worked are for the previous year. An individual was classified as working full year, full time if he or she worked 49 to 52 weeks full time (30 hours or more per week).

Other family income: this variable is calculated by first subtracting individual employment income (if any) from total economic family income and then adjusting for family size by dividing it by an adjustment factor that takes the lower relative needs of additional family members into account.

Income quintiles are then calculated using the adjusted other family income. Note that information on income variables is for the year prior to the census year.

Education: education levels are constructed using the highest certificate, diploma or degree variable. The various categories are collapsed into five levels. The lowest level, Level 1, is below a high school graduation certificate or equivalency diploma. Level 2 is a high school graduation certificate or equivalency diploma. Level 3 includes other trade certificates/diplomas or registered apprenticeship certificates. Level 4 consists of college, CEGEP or other non-university certificates or diplomas from a program of 3 months to less than 1 year, college, CEGEP or other non-university certificates or diplomas from a program of 1 year to 2 years, college, CEGEP or other non-university certificates or diplomas from a program of more than 2 years, or certificates or diplomas below bachelor. The highest level, Level 5, includes bachelor's degrees, certificates or diplomas above bachelor, degrees in medicine, dentistry, veterinary medicine or optometry, master's degrees, or earned doctorate degrees.

Activity limitations: the limited often and limited sometimes variables are based on the following census questions, which refer to conditions or health problems that have lasted or are expected to last six months or more:

1. "Does this person have any difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing any similar activities?" (Yes, often; Yes, sometimes; No).

2. "Does a physical condition or mental condition or health problem reduce the amount or the kind of activity this person can do: (a) at home? (b) at school or at work? (c) in other activities, for example, transportation or leisure?" (Yes, often; Yes, sometimes; No).

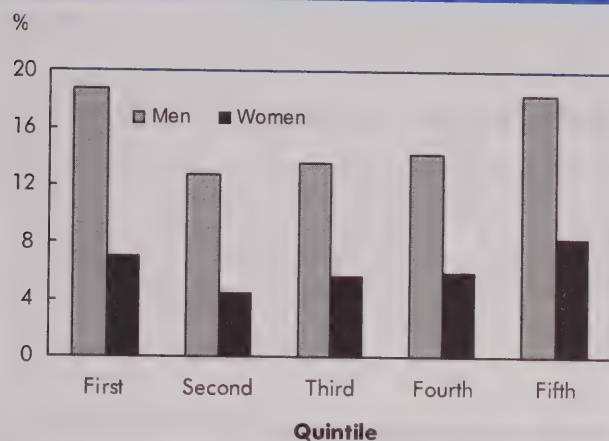
Mortgage payments: the variable is "yes" if any regular mortgage or loan payments are being made; "none" if none are being made; "not applicable" if the individual does not own the dwelling. Other than information on the value of the dwelling and mortgage payments, the census does not include other measures of individual wealth.

Occupation: Based on National Occupational Classification (520 occupations).

extreme, those with high levels of other income are also likely to be highly educated and, given that education is positively related to employment (Haider and Loughran 2001), they are more likely to be employed. In addition, those with high levels of such income are more likely to have spouses who are still employed (as spousal earnings are a part of this income). Earlier research (Blau and Riphahn 1999, and Schirle 2008) has shown that one member of a couple is much more

likely to be employed if the other spouse is employed than if the spouse is not employed. Another factor could be that those in higher income quintiles may be business owners.

To account for both income size and composition effects, the total and its separate components were examined. The total, 'other family income,' is defined as family income minus employment income (if any),

Chart D Employment rates among seniors by 'other family income' quintile

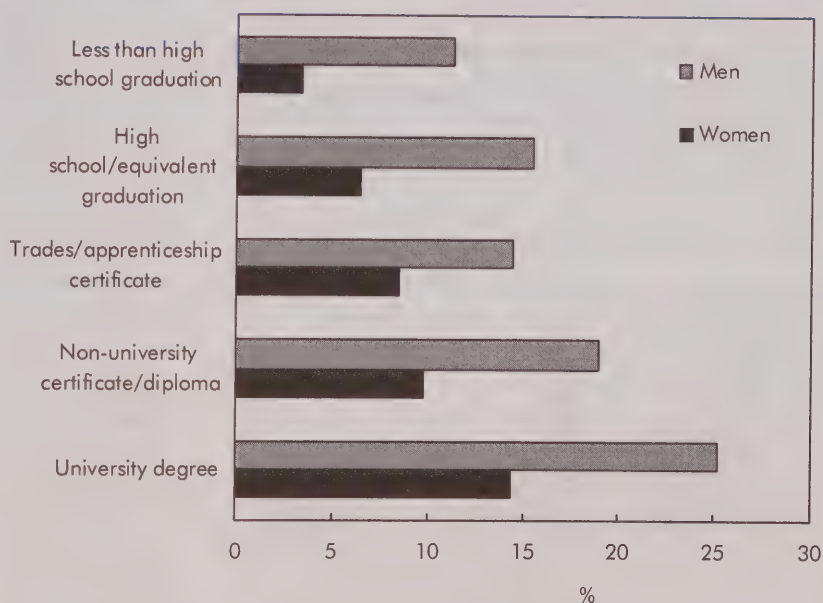
Source: Statistics Canada, Census of Population, 2006.

fourth quintiles, the proportions were 12.7%, 13.5% and 14.2%, respectively. The same pattern is evident for women, although at lower levels than for men.

Highly educated seniors are much more likely to continue working past the traditional retirement age (Haider and Loughran 2001, and Parries and Sommers 1994) (Chart E). In 2006, 25.2% of men with at least a university degree were employed compared with 11.3% of those without a high school diploma. Among women, the respective rates were 14.4% and 3.4%. The employment rates for intermediate levels of education were located between these two extremes. One of the reasons for the positive relationship between education and employment among seniors is that jobs requiring higher levels of education are usually less physically demanding (Park 2007). In such conditions, physical limitations associated with aging may be less likely to lead to retirement.

and is adjusted for family size (see *Data source and definitions*). Other family income consists of three main components: public pensions (Canada Pension Plan/Quebec Pension Plan, Old Age Security, and other government transfers [e.g., Guaranteed Income Supplement]), private income (private pensions, registered retirement savings plans, investment income, and other money income), and employment income of other family members.⁷ Descriptive results are presented for other family income, while the three components are incorporated into multivariate models.

Men and women in the lowest and highest other family income quintiles were more likely to be employed compared with those in the second, third and fourth quintiles. In 2006, 18.7% of men in the first quintile and 18.3% of those in the fifth quintile were employed (Chart D). In the second, third and

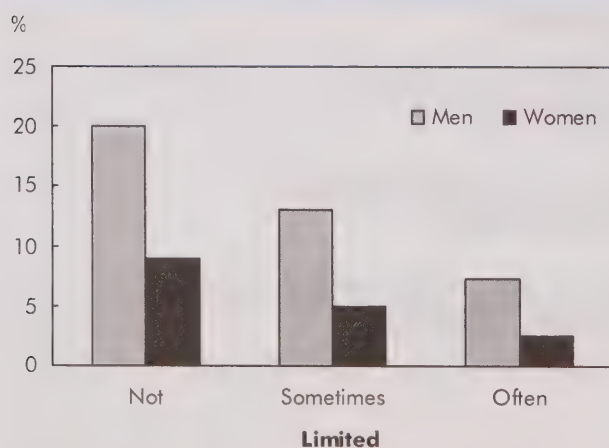
Chart E Employment rates among seniors by level of education

Source: Statistics Canada, Census of Population, 2006.

Health status has also been cited as a determinant of labour market activity among seniors. Activity limitations—a key element of the health status of seniors—have been found to be negatively associated with employment among the elderly (Haider and Loughran 2001, and Parries and Sommers 1994). In 2006, 21.8% of senior men and 24.0% of senior women reported that they were “often” limited in their daily activities. Another 26.2% of men and 27.5% of women stated that they were “sometimes” limited. Activity limitations were associated with employment decisions (Chart F). Among men, 20.1% of those without any limitations were employed, while 13.1% of the “sometimes” limited and 7.3% of the “often” limited were working. Among women, 8.9% of those who did not report any limitations were employed. For those with some form of activity limitation, the rates were less than 5%.

Finally, seniors carrying debt might be constrained to stay in the labour market to meet their financial obligations.⁸ Even though the census does not provide a complete balance sheet, it does have information on the presence of a mortgage—the largest debt for most individuals. On the basis of this measure, 18.8% of senior men and 16.3% of senior women reported that their households were making regular mortgage payments. Another 20.9% of men and 28.8% of women

Chart F Employment rates among seniors by activity limitation



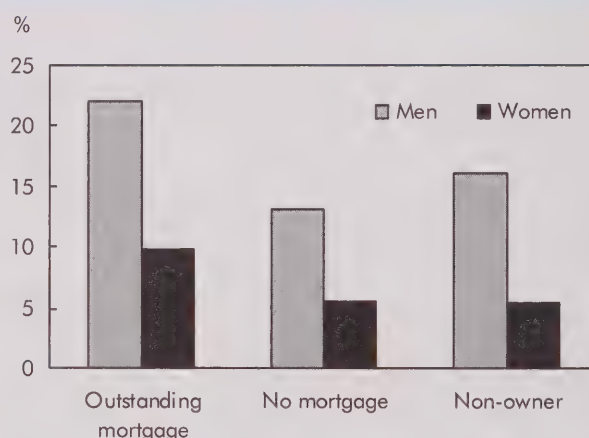
Source: Statistics Canada, Census of Population, 2006.

did not own their dwellings. The remainder owned their homes mortgage-free. Overall, 22.1% of men and 9.9% of women who had a mortgage were still active in the labour market (Chart G). Seniors without a mortgage, whether renters or mortgage-free owners, were less likely to work.

Modelling the employment of seniors

In order to gauge the potential relationship between the above factors and the probability of being employed, a logit model was estimated with all four explanatory factors as independent variables. A number of sociodemographic variables were also included as controls.

Chart G Employment rates among seniors by outstanding mortgage



Source: Statistics Canada, Census of Population, 2006.

The results indicated that education is positively associated with employment (Table 5). When those with a high school diploma were used as the reference group, women with the lowest educational attainment had lower odds of being employed. In contrast, those with higher education levels were more likely to be employed. This was especially true for university-educated women. In fact, the odds ratio⁹ for women in this level was two times higher than for those with a high school diploma. Among men, those with less than high school

Table 5 Odds ratios for employment model¹ for seniors

	Men	Women
	ratio	
Other family income		
First quintile	1.51*	1.59*
Second quintile	1.01	0.93*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.93*	0.88*
Fifth quintile	1.15*	1.11*
Highest level of education		
Less than high school	0.77*	0.62*
High school or equivalent (ref.)	1.00	1.00
Trades/apprenticeship certificate	0.93*	1.24*
Non-university certificate/diploma	1.23*	1.44*
University degree	1.80*	2.01*
Activity limitations		
None (ref.)	1.00	1.00
Sometimes	0.68*	0.64*
Often	0.39*	0.39*
Mortgage payments		
Yes (ref.)	1.00	1.00
None	0.55*	0.55*
Non-owners	0.92*	0.79*

* significantly different from the reference group (ref.) at the 0.01 level
 1. Dependent variable = 1 if employed in the reference week,
 0 otherwise.

Note: Models also controlled for age, marital status, immigrant/
 Aboriginal status, official language, type of region, and province.
 Source: Statistics Canada, Census of Population, 2006.

or with a trades/apprenticeship certificate were less likely to be employed. As with women, men with a university education were the most likely to work.

A mortgage can be a good proxy for total household debt levels. Homeowners without mortgage payments and non-owners were less likely to be employed compared with those making regular mortgage payments.¹⁰ The odds ratios were lower by 0.45 and 0.08 for men without mortgage payments and non-owners, respectively. For women, the odds ratios related to these two categories were lower by 0.45 and by 0.21.

Seniors with activity limitations were also less likely to be employed. In comparison with men without any activity limitations, the odds ratio for men who stated they were "sometimes" limited was lower by 0.32. The odds were even lower (by 0.61) for those who stated that they were "often" limited, which is indicative of the severity of a disability. Similarly, the odds were

lower by 0.61 for women who indicated they were often limited and by 0.36 for those who were sometimes limited.

The model indicated that men in the bottom and top other family income quintiles were more likely to be employed compared with those in the middle quintile, while the coefficients for the second quintile were not significantly different from the middle quintile.¹¹ Compared with those in the middle quintile, the odds ratio for those in the bottom quintile was higher by 0.51. The corresponding number for those in the top quintile was 0.15. Similarly, women in the bottom and top income quintiles were more likely to be employed compared with those in the middle. However, women in the second and fourth income quintiles were less likely to be employed. The odds ratios for those in the first and fifth quintiles were higher by 0.59 and 0.11, respectively, compared with the middle quintile. On the other hand, the odds ratios were lower by 0.07 and 0.12 for those in the second and fourth quintiles, respectively.

Descriptive statistics showed that both men and women in the bottom and top income quintiles were more likely to work. However, because employment was also positively related with high educational attainment, and because individuals in the top income quintile are also likely to be highly educated, the impact on employment from being part of the top quintile could be expected to be much lower when education variables are accounted for. However, even after controlling for education, men in the top quintile were still more likely to be working as opposed to those in the middle. One potential explanation is that a high level of other family income may be indicative of other family members working. Moreover, the source of other income may affect the decision to work.

To study the impact of other family income in more detail, it was split into three components: public pensions (Canada Pension Plan/Quebec Pension Plan, Old Age Security, and other government transfers [e.g., Guaranteed Income Supplement]), private income (private pensions, registered retirement savings plans, investment income, and other money income), and an indicator for the presence of another family member with positive employment earnings. Quintiles for public pensions and private income were included in the model. However, earnings of other family members could not be split into quintiles as approximately 70% did not have another family member with positive earnings.

Men and women in the top two quintiles of public pensions and private income became less likely to be employed than those in the middle quintile when earnings of other family members were taken out of the equation, while those in the bottom two quintiles of public and private pensions remained more likely to work (Table 6). Seniors with positive earnings from other family members (spouses in most cases) were more likely to be working themselves, especially men. Thus, the employment decision for those in the top quintile appears to be driven by work decisions of other family members (mostly the spouse), and for those in the bottom quintile by relatively low income from public pensions and private sources. The models were also estimated separately for the youngest group (65 to 69 years of age) as they constitute the majority of senior workers. The conclusions remained unchanged.¹²

Descriptive overview of work intensity

The amount of time seniors spend on the job is also of interest. A significant minority of senior workers reported full-year, full-time jobs (Chart H).¹³ Among

men, slightly more than 40% worked full year, full time in 2005. Just under one-third of working women also worked on a full-year, full-time basis in 2005 (31%), although just as many worked on a part-time, part-year basis (31%). These results were similar across census years.

The proportion of seniors working full time, full year varied little across age groups (Table 7). Among men, those age 65 to 74 were slightly more likely to work full year, full time compared with those 75 and over (41.8% versus 40.4%). Among women, 30.2% of the 65 to 74 group worked full year, full time in 2005, compared with 32.2% of working women 75 and over.

Chart H Seniors employed full year, full time



Source: Statistics Canada, Census of Population, 1981 to 2006.

Table 6 Odds ratios for alternative seniors' employment model¹

	Men	Women
Public pensions/government transfers		
First quintile	1.92*	1.83*
Second quintile	1.20*	1.19*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.90*	0.93*
Fifth quintile	0.93*	0.95*
Private income		
First quintile	1.30*	1.10*
Second quintile	1.34*	1.21*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.78*	0.79*
Fifth quintile	0.81*	0.69*
Other family member with positive earnings		
Yes	2.16*	1.68*
No (ref.)	1.00	1.00

* significantly different from the reference group (ref.) at the 0.01 level
1. Dependent variable = 1 if employed in the reference week, 0 otherwise.

Note: Models also controlled for education, activity limitations, mortgage payment indicator, age, marital status, immigrant/Aboriginal status, official language, type of region, and province.
Source: Statistics Canada, Census of Population, 2006.

Some personal and job characteristics were associated with a higher probability of working full year, full time. This was the case for women who were unpaid family workers and men who were self-employed. Both men and women in management positions were much more likely to work full year, full time (53.0% for men and 46.4% for women). In contrast, unskilled workers were much less likely to work on a full-year, full-time basis.

In the previous section, results indicated that men who were in the bottom quintile of other family income were more likely to be employed. They were not only

Table 7 Full-year, full-time employment rates by age, employment status and occupation

	Men	Women
	%	
Total	41.6	30.6
Age		
65 to 74	41.8	30.2
75 and over	40.4	32.2
Employment status		
Employee	39.8	29.6
Self-employed	43.8	32.0
Unpaid family worker	30.1	40.4
Occupation		
Management	53.0	46.4
Professional	35.9	23.4
Skilled	45.4	33.5
Semi-skilled	38.3	29.6
Unskilled	30.1	23.2

Source: Statistics Canada, Census of Population, 2006.

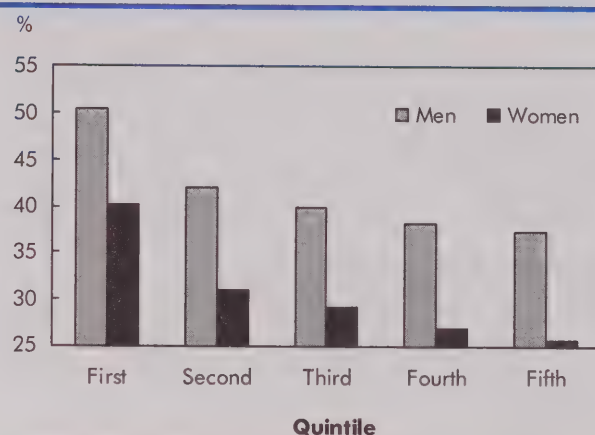
more likely to be employed, but were also working more intensively as 50.4% of employed men and 40.2% of employed women in the bottom quintile worked the entire year on full-time basis (Chart I).

Results indicated that men in the top quintile were more likely to be working as opposed to those in the middle. However, they were less likely to be working full-year, full-time compared with men in any other quintile. Similar trends were found among women.

Modelling work intensity

To test the robustness of the above findings, another logit model was estimated to study the association of various variables with the probability of working full year, full time. Results indicate that working seniors in the bottom income quintile were more likely to work full year, full time in comparison with those in the middle quintile, while the opposite was true for seniors in the top two quintiles (Table 8). Among men, the odds ratio for those in the bottom quintile was higher by 0.46 compared with those in the middle.

Although higher educational attainment was associated with a lower probability of working full year, full time for men, the results for women were not as clear.

Chart I Full-year, full-time rates by other family income quintile

Source: Statistics Canada, Census of Population, 2006.

Those with a trades/apprenticeship certificate were less likely to work on a full-year, full-time basis than those with a high school diploma, with results statistically insignificant for other levels. Seniors with activity limitations were less likely to work full year, full time than those without. Finally, those without mortgage payments were less likely to work full year, full time.

Models were again re-estimated after splitting other family income into public pensions, private income, and an indicator of another family member with positive earnings. Men in the bottom two quintiles of public pensions and private income were more likely and those in the top two quintiles less likely to work full year, full time compared with those in the middle quintile (Table 9). For women, this was only true for private income.

For public pension income, women in the bottom two quintiles and the top quintile were more likely to work full year, full time compared with those in the third quintile. For both men and women, those who had another family member with positive earnings were more likely to work full year, full time.

When the models were estimated to include only those age 65 to 69, the conclusions remained unchanged for men. For women, one conclusion regarding public pensions changed—the coefficient for the fifth quintile was statistically insignificant.¹⁴

Table 8 Odds ratios for seniors' work intensity model¹

	Men	Women
	ratio	
Other family income		
First quintile	1.46*	1.48*
Second quintile	1.06	1.04
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.94**	0.89**
Fifth quintile	0.90*	0.82*
Highest level of education		
Less than high school	1.08*	1.03
High school or equivalent (ref.)	1.00	1.00
Trades/apprenticeship certificate	0.91*	0.89**
Non-university certificate/diploma	0.92*	0.94
University degree	0.84*	0.93
Activity limitations		
None (ref.)	1.00	1.00
Sometimes	0.74*	0.74*
Often	0.74*	0.81*
Mortgage payments		
Yes (ref.)	1.00	1.00
None	0.71*	0.68*
Non-owners	1.08*	0.91**

* significantly different from the reference group (ref.) at the 0.01 level; ** at the 0.05 level

1. Dependent variable = 1 if employed full year, full time, 0 otherwise.

Note: Models also controlled for age, marital status, immigrant/Aboriginal status, official language, industry, occupation, employment status, type of region, and province.

Source: Statistics Canada, Census of Population, 2006.

Table 9 Odds ratios for alternative seniors' work intensity model¹

	Men	Women
	ratio	
Public pensions/government transfers		
First quintile	1.68*	1.75*
Second quintile	1.16*	1.25*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.91*	0.99
Fifth quintile	0.90*	1.10**
Private income		
First quintile	1.42*	1.51*
Second quintile	1.34*	1.28*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.81*	0.84*
Fifth quintile	0.68*	0.65*
Other family member with positive earnings		
Yes	1.19*	1.08**
No (ref.)	1.00	1.00

* significantly different from the reference group (ref.) at the 0.01 level; ** at the 0.05 level

1. Dependent variable = 1 if employed full year, full time, 0 otherwise.

Note: Models also controlled for education, activity limitations, mortgage payment indicator, age, marital status, immigrant/Aboriginal status, official language, industry, occupation, employment status, type of region, and province.

Source: Statistics Canada, Census of Population, 2006.

Conclusion

While most seniors retire by age 65, many continue to work beyond this traditional milestone. In addition to policy changes that have eliminated the mandatory age of retirement, improved education levels and health status over time have created conditions for people to work longer.

Using Canadian census data, this study examined trends in work activity among seniors at least 65 years of age from 1981 to 2006. It also used 2006 Census data to study the factors that are associated with employment at this age. Results indicate that the employment rate among seniors has been on the rise in recent years after registering declines in the 1980s and early 1990s. Between 1996 and 2006, the rate increased from 11.8% to 14.8% for men and from 4.0% to 5.8% for women.

Among those who also worked the previous year, many did so on a full-time, full-year basis (41.6% of men and 30.6% of women). Working seniors were highly concentrated in consumer services and had a less diverse occupational profile than younger workers.

This study also modelled many factors associated with the labour market participation of seniors. Men and women in the bottom and top quintiles of other family income were more likely to be employed compared with those in the middle, although the association was stronger for those in the bottom quintile. Bottom-quintile individuals were not only more likely to work—they also worked more intensively. However, a detailed analysis of income sources showed that not all sources of income equally affected seniors' probability of working. Private sources of income and public pensions were negatively associated with labour market participation, while earnings of family members (mostly spouses) were positively associated with

labour market participation. Higher levels of education, the absence of activity limitations and the presence of mortgage payments were other factors associated with a higher probability of employment. Overall, such results suggest that even if some seniors stay in the labour market by choice, many others likely remain working out of necessity. And the work intensity of those who are financially constrained is significantly higher.

Perspectives

■ Notes

- Other countries also began introducing policy changes to deal with an aging workforce. For example, the United States raised the eligibility age for social security to 67 for those born after 1960. Also, it provides delayed retirement credits to seniors working past retirement age.
- However many studies focus on early retirement behaviour. Examples of studies using Canadian data include Baker et al. 2003, Campolieti 2001 and 2002, and Maki 1993.
- Some examples of studies on the determinants of labour market participation among seniors can be found in other countries. For example, Haider and Loughran (2001) used U.S. data and found that the labour supply of seniors was concentrated among the most educated, wealthiest and healthiest. It also reported that non-pecuniary considerations play an important role in determining employment decisions among seniors. Using data from Germany, Blau and Riphahn (1999) found that one member of a couple was much more likely to be employed if the other spouse was also employed.
- These numbers are mainly influenced by the labour market participation of pre-baby boomers. With the much better-educated baby boomers now approaching their retirement years, the employment rates could rise even further in the future.
- For the remainder of the paper, institutional residents are excluded from the analysis as information on various variables is not available for them. Note that for the rest of the population, the employment rate in 2006 was 15.5% among men and 6.3% among women.
- Comparisons are made with 2001 rather than 1981 as the industrial and occupational classification has changed over time. Also, most of the increase in labour market participation occurred between 2001 and 2006.
- Some of the existing Canadian studies addressing the association between labour market decisions and pensions include Baker et al. (2003), and the association between labour market decisions and spousal earnings include Schirle (2008). Parries and Sommers (1994) study the relationship between “non-labour income” (in addition to other variables) and the labour force participation of men age 68 and over in the United States.
- Fortin (1995) shows that among married Canadian women age 35 to 65, labour force participation rates were higher for women in home-owning families with mortgages compared with women from families that either rent or own a home with no mortgage. Using Australian data, Belkar et al. (2007) find that indebtedness increases an individual’s probability of participation in the labour force, especially the levels of owner-occupied mortgage debt for men.
- The odds ratio is the ratio for the odds of an event occurring in one group compared with the odds of it occurring in another group. An odds ratio greater than 1 indicates that the event is more likely to occur in that particular group compared with the reference group. On the other hand, an odds ratio less than 1 indicates that the event is less likely to occur. For example, in an employment model, if the odds ratio for men is 1.20 with women being the reference group, it would imply that the odds for men being employed are higher by 0.20 compared with women. On the other hand, an odds ratio of 0.80 for men can be interpreted as the odds for men being employed are lower by 0.20 compared with women.
- The causal nature of the relationship between mortgage debt and employment might be argued. Belkar et al. (2007), Del Boca and Lusardi (2002), and Fortin (1995) find that mortgage payments are exogenous to the labour force decision. This exogeneity is more likely to hold for seniors as they are less likely to take on bigger mortgage debts due to their work activity.
- Some of the independent variables might be related. For example, individuals in the higher income quintile are also likely to be the ones with higher levels of education. Keeping this in mind, first a model was estimated without education and a mortgage rate indicator. The results, which are qualitatively the same as the ones from the full model presented here, are available from the author upon request.
- The results are available from the author upon request.
- The employed sample was restricted to men and women 66 years of age and over in the census year because information on weeks of work is available for the year prior to the census. The sample consisted of individuals who worked both in the census year and the previous year. This should not create much of a bias given that a very small proportion of individuals worked in the census year and not the previous year. For example, for the 2006 Census this proportion was 0.9% among men and 0.5% among women.
- The results are available from the author upon request.

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Income in manufacturing regions

Manon Langevin

Shrinking employment in manufacturing is a trend observed in OECD (Organisation for Economic Co-operation and Development) countries as a whole (Bernard 2009a). From 2000 to 2007, the sector lost 278,000 jobs in Canada, or one in six, which reduced its share of total employment from 16% to 12%.¹ The decline took place during a period of general economic growth with a vibrant labour market and low unemployment: in 2007, there were employment gains in every sector except manufacturing, and the unemployment rate fell to 6.0%, its lowest level in 33 years. Some sectors, such as natural resources, experienced vigorous growth, even verging on a shortage of workers. During those years, for every job lost in manufacturing, nearly two jobs were created in construction, health care and social assistance (Lin 2008).

The decline of the manufacturing sector can have serious repercussions for the economic health of some regions, particularly when jobs with manufacturing firms are an important source of employment at the local level. In those regions, the downsizing or closure of a single company can have a snowball effect, affecting not only the company's employees but also business activity and employment among its suppliers. The decrease in employment earnings of workers who are laid off or affected by cuts in work hours can lead to lower household spending and reduced profitability for local retail stores and service firms. The indirect layoffs that result from this process increase the number of unemployed workers, which puts downward pressure on the wages offered by local employers in every sector. Ultimately, the combined effects may impede the local job creation process and thereby weaken the economy of the affected regions.²

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Economic and employment trends in the manufacturing sector are fairly well documented. Much less so, however, is the impact that those trends have on personal income, depending on the sector's regional importance. Taking advantage of the high level of regional detail in the Longitudinal Administrative Database (LAD) (see *Data source and definitions*), this article examines median income, low-income incidence and use of Employment Insurance (EI) in the various regions, which are ranked by the level of concentration in manufacturing employment. These indicators are compared at two points in time: the most recent peak in manufacturing employment (2000) and the last full year of economic growth (2007). The probability of income loss between those two years for persons living in the same region in 2000 and 2007 is then studied. The estimated probabilities are based on the degree of regional concentration of manufacturing employment and whether these individuals were working in manufacturing in 2000.

Since the economic environment is fundamentally different between major centres and smaller cities (especially with regard to low income), the results of the cross-sectional analysis for metropolitan areas with a population of more than 500,000 are presented separately from the results for smaller areas (see *Income and employment in census metropolitan areas with a population of 500,000 or more*).

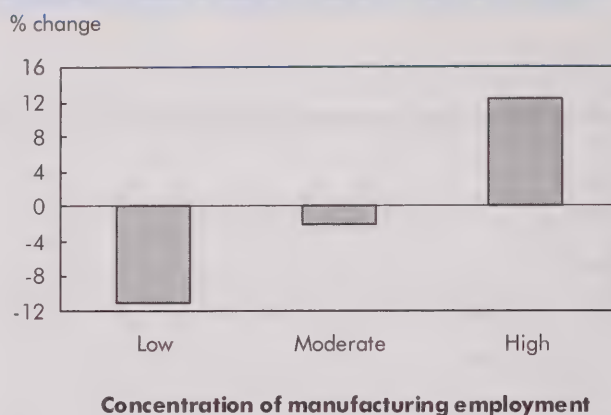
Greater decline in employment in regions with high manufacturing concentration

The loss of a job can result in several unemployment episodes and a loss of employment income (Galarneau and Stratyckuk 2001, Bernard and Galarneau 2010) when workers are forced to take lower-paying jobs. Employment income may start falling even before the job loss, and such decreases often persist much longer

than the duration of unemployment benefits (Morissette et al. 2007). The following sections describe some indicators of the incidence of the decline in manufacturing at the regional level, with census metropolitan areas (CMAs) and census agglomerations (CAs) grouped by level of employment concentration in manufacturing (low, moderate and high) (see *Concentration rate*).

The majority of regions with a high concentration of manufacturing employment are in Quebec (for example, Granby and Thetford Mines) and Ontario (for example, Windsor and Oshawa)—a complete list of CMAs and CAs is provided in the appendix. Those regions have been hardest hit by the slump in manufacturing. From 2000 to 2007, losses of manufacturing jobs totalled 68,600, a 21.9% drop. In comparison, low-concentration regions lost 11,300 manufacturing jobs, a decline of 13.3%.

Chart A Change in number of EI beneficiaries



Note: The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 and 2007.

Income and employment in census metropolitan areas with a population of 500,000 or more

From 2000 to 2007, manufacturing employment shrank in every census metropolitan area (Table 1). The leaders were Toronto and Montréal, which together lost 172,800 jobs. Toronto suffered the heaviest loss (95,300 jobs).³ Along with Hamilton, which had the largest proportion of manufacturing

employment, Toronto was one of the few regions that experienced a decline in market income (6.8%). However, because those regions have a very different economic profile than smaller regions, it is difficult to draw any conclusions from these statistics.

Table 1 Change in employment and income in census metropolitan areas with a population of 500,000 or more

	Share of manufacturing employment %	Number of manufacturing jobs			Median market income		
		2000	2007	% change	2000 (\$)	2007 (\$)	% change
Ottawa-Gatineau	9.1	42,530	25,300	-40.5	37,800	38,500	1.9
Québec	10.8	34,440	30,325	-11.9	29,500	32,300	9.5
Edmonton	11.5	48,850	45,710	-6.4	31,700	37,700	18.9
Vancouver	12.1	97,540	88,335	-9.4	29,500	30,700	4.1
Calgary	12.3	54,365	47,660	-12.3	33,500	38,700	15.5
Winnipeg	16.1	48,970	42,150	-13.9	29,300	31,200	6.5
Montréal	19.6	292,945	215,420	-26.5	29,100	29,000	-0.3
Toronto	20.4	399,995	304,675	-23.8	33,600	31,300	-6.8
Hamilton	23.3	62,645	51,220	-18.2	35,200	34,200	-2.8

Note: The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 and 2007.

More people on Employment Insurance

Manufacturing layoffs had a significant impact on the number of EI beneficiaries, and that impact varied considerably with the regional rate of employment

concentration in the sector. In regions with a high concentration of manufacturing employment, job losses resulted in an increase of 12.4% in the number of people on EI, from 173,600 in 2000 to 195,000 in 2007 (Chart A).

Data source and definitions

The **Longitudinal Administrative Database (LAD)** is a longitudinal and cross-sectional sample composed of 20% of Canadian tax filers. The data are drawn from the T1 income tax returns of individuals. The large number of observations in LAD makes it possible to produce reliable estimates, not only for all of Canada and the provinces, but also for census metropolitan areas (CMAs) and census agglomerations (CAs). LAD also provides a wide range of income sources, which facilitates the study of changes in income and its composition over time. The industry sector variable, based on the North American Industry Classification System, is produced by matching LAD with the Business Register.

This article has a cross-sectional part and a longitudinal part. The target population is somewhat different depending on whether the analysis is cross-sectional or longitudinal. For the cross-sectional analysis, the 2000 and 2007 samples are independent and include persons age 20 to 64 living in a CMA or CA. Non-CMA and non-CA residents are excluded. The longitudinal sample includes all persons age 20 to 57 in 2000 (27 to 64 in 2007) living in the same CMA or CA in 2007 and 2000. The age restrictions for the longitudinal sample were established to avoid having to take variations due to retirement into account, without excluding variations due to unplanned and early retirement that may be the result of a decline in a company's business activity. The longitudinal population makes up 90% of the 2000 population. For both analyses, the 2000 boundaries are used for CMAs and CAs. For 2007, the 2000 boundaries were recreated using postal codes available in LAD. For more information on the advantages of keeping area boundaries constant over time, see Heisz et al. (2005).

All amounts are in 2007 constant dollars.

Employment income is the sum of all employment income reported on T4 slips. It includes salaries, wages and commissions before deductions and excludes self-employment income.

Market income includes the following components:

- employment income (reported on T4 slips)
- other employment income
- net self-employment income
- exemption of Indian employment income
- income from other pensions and retirement pensions
- dividends
- interest and other investment income
- net partnership income

- net rental income
- support payments
- registered retirement savings plan income of persons age 65 and over
- other income

Total income includes all market income components plus the following:

- Old Age Security pension
- Canada Pension Plan and Quebec Pension Plan benefits
- family benefits
- Employment Insurance benefits
- Universal Child Care Benefit
- non-taxable income
- refundable provincial tax credits
- child tax credits
- Canada Child Tax Benefit
- goods and services tax (GST) and Québec sales tax (QST) credits

Total income after tax is total income minus provincial and federal income tax, plus the Quebec abatement.

The **low-income indicator** identifies low-income persons according to the Low Income Measure (LIM). LIM represents one-half of median family income after tax, adjusted for family size.

The analysis covers only two periods and cannot capture all labour and income dynamics between the two periods. A more detailed study of the dynamics between personal income and labour market activity is needed to better understand how wealth creation mechanisms were affected in regions with a high concentration of manufacturing employment. Moreover, since the study focuses largely on people who lived in the same place during the observation period, it does not take labour mobility into account. It thus excludes people who moved to improve their employment conditions. Consider the case of Alberta, for example. The province benefited substantially from declining employment in manufacturing in other regions and served as a major source of re-employment, notably in construction, for less skilled manufacturing workers. It is also important to note that LAD contains relatively little information on the demographic characteristics of the persons included in the database. For example, it has no information on level of schooling, an essential variable for studying employment income and workers' ability to find new jobs.

In contrast, regions with a low concentration of manufacturing employment saw a decrease of 22,500 beneficiaries, or 11.0%, over the same period. These statistics suggest that job security deteriorated in regions of high manufacturing concentration, leaving workers at greater risk of unemployment episodes and hence more likely to be on EI.

Sharp decline in income in regions with high manufacturing concentration

A high level of employment concentration in manufacturing also appears to be associated with larger income losses.⁴ In high-concentration regions, employment income fell by 2.4%, compared with low-concentration regions, where it rose by 10.5% (Chart B). The pattern is similar for market income, which indicates that the decrease in employment income was not offset by increases in other components of market income (see *Data source and definitions*). This finding suggests that the decline in employment income is not due to a rise in retirement in those regions, mainly because the decline in employment income would have been partially offset by an increase in pension income for those persons. The decrease in market income would

have been smaller than the decline in employment income, however, the data show the opposite.⁵ Government transfers and the tax system had a stabilizing effect in those regions, since total income before tax and total income after tax rose during the period.

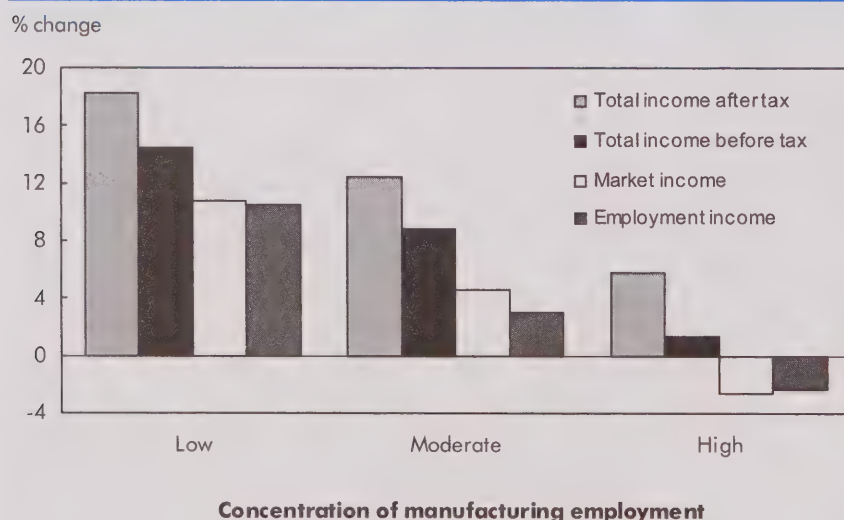
The variations changed the regions' comparative income ranking. In 2000, regions with high manufacturing concentration had the highest median income (all types of income), while in 2007 the reverse was true, as those regions had the lowest incomes.

Moreover, residents of high-concentration regions who were in the lowest income quartile (1st quartile) experienced relatively large losses—a 4.8% drop in their market income, compared with a 16.8% increase for their counterparts in low-concentration regions (Chart C). The median income in the lowest income quartile was higher in low-concentration regions (\$7,200) than in high-concentration regions (\$6,100), whereas the opposite was true in 2000.

These trends have widened income disparity in high-concentration regions and reduced it in low-concentration regions. Income decreases in the two lower quartiles in high-concentration regions were accom-

panied by an increase in the number of low-income people—from 2000 to 2007, the number of low-income people rose 5.6% in those regions, compared with a drop of 15.5% in low-concentration regions (Chart D).

Chart B Change in median total¹ market and employment incomes



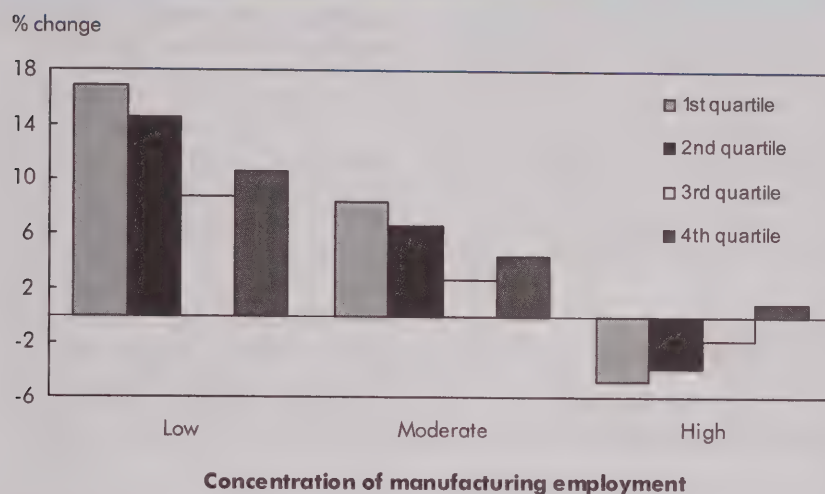
1. Before and after tax.

Note: The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 and 2007.

More frequent income declines in small, high-concentration regions

The following sections concern workers who were living in the same CMA or CA in 2000 and 2007. The data are from an ordered logistic regression model. The model isolates the effects of manufacturing concentration on income changes, for various levels of income loss, depending on whether the worker was employed in the manufacturing sector.⁶ More specifically, it estimates the probability of experiencing various levels of total income loss,⁷ by relative concentration of local employment in the manufacturing sector, for the

Chart C Change in median income, by market income quartile

Note: The concentration of manufacturing employment was kept constant with that calculated in 2000. For a given quartile, the income change is equal to the difference between the median income of persons in this quartile based on the 2007 income distribution, and the median income of persons in the same quartile based on the 2000 income distribution.

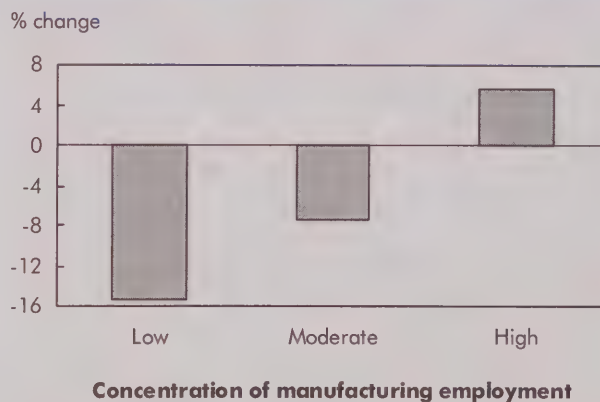
Source: Statistics Canada, Longitudinal Administrative Database, 2000 and 2007.

People in high-concentration regions were more likely to experience relatively large income losses (20% or more of their initial income), the probability of experiencing such a loss was between 18.4% and 29.9% higher than in low-concentration regions, depending on region size. They were also less likely to experience an income gain or no income loss during the period—the probability was between 4.1% and 6.0% lower than in low-concentration regions.

Region size mattered as well, since residents of small cities were more likely to experience income loss than residents of large urban centres. Residents of small regions (population 30,000 or less) with high manufacturing concentration were between 20.8% and 29.9% more likely to experience income loss than those in low-concentration regions of comparable size.

entire population, for manufacturing workers and for workers in other sectors. The same model was also used to estimate the probability that workers would receive EI benefits a specific number of times during the period. The results are all presented in the form of differences in predicted probabilities relative to the reference group, to determine how likely individuals are to experience one of the events in question: income loss, receiving EI or low-income status (see *Models*).

The probability that a person will experience a decline in total income⁸ is significantly associated with the concentration of local employment in manufacturing (Table 2). In fact, the higher the concentration of employment in manufacturing, the greater the probability of experiencing a decline in total income. The probability was between 12.6% and 18.4% higher than in low-concentration regions (for all region sizes combined). In moderate-concentration regions, the probability was between 7.1% and 10.1% higher.⁹

Chart D Change in number of persons with low income after tax

Note: The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 and 2007.

Manufacturing workers lost more income in regions with high manufacturing concentration

Workers employed in manufacturing were at greater risk of experiencing a decrease in income if they were employed in regions with high manufacturing concentration. That was the case regardless of region size or magnitude of loss. Overall, they were between 9.4% and 16.3% more likely to experience income loss than workers in a comparable job in a low-concentration region, and 5.0% less likely to experience a gain or no loss in income (Table 2). In addition, manufacturing workers were at greater risk of experiencing relatively high income losses, regardless of region size, but to a greater extent if they were employed outside a large urban centre. In such cases, the effect ranged between 19.6% for regions with a population

of 30,000 or less and 36.0% for regions with a population of 500,000 or less.

Income also decreases for workers in other sectors

Although the decline in manufacturing had a greater impact on the incomes of manufacturing workers, it also affected the incomes of workers in other sectors. The latter also had a significantly higher risk of experiencing income loss if they were employed in a region with high manufacturing concentration. That was the case for all levels of income loss and all sizes of region of residence. However, the effect was more pronounced outside large urban centres (population of 500,000 or less). For income losses of 20% or more of initial income, the effect ranged between 15.0% and 23.3%, compared with 10.5% for all regions, including large centres. This finding indicates that the decline in manufacturing employment seems to have had a greater impact on smaller regions, where labour demand is less diversified.

Table 2 Marginal effect on probability of loss in total income, by region size and concentration of manufacturing employment

	All regions combined	Census metropolitan areas and census agglomerations		Census agglomerations	
		1 million or less	500,000 or less	100,000 or less	30,000 or less
%					
Overall population					
Moderate concentration					
Gain or no loss	-2,3	-1,6	-2,0	-1,6	-2,7
10% or less	7,1	5,0	6,7	5,4	9,7
Between 10% and 20%	8,3	5,8	7,8	6,2	11,3
20% or more	10,1	7,0	9,3	7,4	13,4
High concentration					
Gain or no loss	-4,1	-4,2	-5,3	-5,4	-6,0
10% or less	12,6	13,2	17,3	17,4	20,8
Between 10% and 20%	14,8	15,5	20,4	20,6	24,7
20% or more	18,4	19,1	25,0	25,4	29,9
Manufacturing workers					
High concentration					
Gain or no loss	-5,0	-5,1	-9,1	-6,7	-5,2
10% or less	9,4	10,7	21,4	14,0	12,1
Between 10% and 20%	12,3	13,8	27,8	18,3	15,6
20% or more	16,3	17,8	36,0	23,8	19,6
Workers in other sectors					
High concentration					
Gain or no loss	-2,3	-2,5	-3,2	-3,4	-4,4
10% or less	7,5	7,9	10,7	11,5	16,8
Between 10% and 20%	8,6	9,2	12,4	13,4	19,5
20% or more	10,5	11,1	15,0	16,2	23,3

Note: All data represent a significant difference from the reference group (persons age 20 to 29 in Quebec, living as a couple, with or without children, in a region with a low concentration of manufacturing employment) at the 0.05 level. The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 to 2007.

Risk of income loss higher among younger workers

For all sectors and concentration levels combined, persons age 40 and over in 2000—especially those from 50 to 57—had a significantly higher risk of experiencing income loss during the study period. The latter group was, on average, nearly 1.5 times more likely to experience income loss than those age 20 to 29 (Table 3). This may be attributable to the higher propensity of persons in the older age group to go into semi-retirement or retirement.

On the other hand, the most affected groups differ when degree of concentration and sector are

Table 3 Marginal effect on probability of loss in total income, by age group in 2000 and size of area of residence

	All regions combined	Census metropolitan areas and census agglomerations		Census agglomerations	
		1 million or less	500,000 or less	100,000 or less	30,000 or less
Overall population					
30 to 39	46.4	43.6	45.3	44.1	47.2
40 to 49	82.7	79.6	84.6	82.7	92.7
50 to 57	141.6	144.7	149.9	144.8	162.0

Note: All data represent a significant difference from the reference group (persons age 20 to 29) at the 0.05 level. The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 to 2007.

controlled for. For example, among manufacturing workers in high-concentration regions, younger people were hardest-hit by the decline in manufacturing employment (Table 4). Workers age 20 to 29 were more likely to experience income loss (between 29.1% and 102.7%) than their same-age counterparts in low-concentration regions. However, they were also more likely to experience a loss of income when they lived in a smaller region. This suggests that younger workers were the first to be affected by the decline in manufacturing employment, probably because they had less job tenure.

Models

The estimates were generated by an ordered logistic regression model. The model's specifications are as follows:

$$\text{Prob}(y_i = m_k) = \alpha + \beta_1 Z_i + \beta_2 C_i + \varepsilon_i$$

The **dependent variable** (y_i) is **total income loss** as a percentage of initial income for the analysis of income change, and **number of years** of receipt when the probability of being on EI is analyzed. In each case, the dependent variable is an ordered categorical variable—since the events (m_k) can be arranged in order of size—and requires the use of an ordered model.

The **events** considered in the analysis of income change are the following:

- gain or no loss in total income;
- total income loss less than or equal to 10%;
- total income loss greater than 10% but less than 20%;
- total income loss equal to or greater than 20%.

For the analysis of EI use, the events are the following:

- did not receive EI benefits at any time;
- received EI benefits for a period of one year;
- received EI benefits for a period of two consecutive years or not;
- received EI benefits for a period of three consecutive years or not, or for a longer period of time.

The C_i term refers to a vector of dummy variables indicating the level of local manufacturing concentration (as previously defined). The Z_i term contains dummy variables for province of residence, age and family composition.

The **predicted probabilities** were calculated using the ordered logistic regression model. Since the variables indicating the level of manufacturing concentration are

dummy variables, the marginal effect of living in a high-concentration region is equal to the difference in predicted probability between this group and the reference group, when the other independent variables are held constant. The reference group is composed of persons age 20 to 29 in 2000 (27 to 36 in 2007) living as a couple, with or without children, in a region with a low concentration of manufacturing employment in Quebec.

To **control for the effect of the size** of census metropolitan areas (CMAs) and census agglomerations (CAs), separate models were estimated for various subsamples based on population size:

- all CMAs and CAs;
- CMAs and CAs with a population of 1 million or less;
- all CMAs and CAs with a population of 500,000 or less;
- CAs with a population of 100,000 or less;
- CAs with a population of 30,000 or less.

Separate models were also estimated for manufacturing workers and workers in other sectors.

The **data in Tables 3 and 4** are from a simple logistic regression model. In the model, the dependent variable has a value of 1 if there is a loss in total income between 2000 and 2007, and 0 otherwise. The explanatory variables and the model's specifications are identical to those used in the ordered model.

The **data in Tables 5 and 7** are also from a simple logistic regression model. In this case, however, the dependent variable has a value of 1 if the person receives EI benefits or is in a low-income situation (depending on the situation studied), and 0 otherwise.

Table 4 Marginal effect on probability of loss in total income, by age group in 2000, size of area of residence, and concentration of manufacturing employment

	All regions combined	Census metropolitan areas and census agglomerations		Census agglomerations	
		1 million or less	500,000 or less	100,000 or less	30,000 or less
		%			
Manufacturing workers					
High concentration					
20 to 29	29.1	31.7	60.4	50.0	102.7
30 to 39	13.5	14.2	30.3	23.6	27.9
40 to 49	8.1	10.0	17.9	11.7	n.s.
50 to 57	9.5	8.5	11.1	5.6	n.s.
Workers in other sectors					
High concentration					
20 to 29	19.5	20.6	23.1	19.3	14.5
30 to 39	11.1	13.1	17.6	16.3	22.0
40 to 49	7.5	8.1	10.0	12.2	19.9
50 to 57	n.s.	n.s.	2.8	5.3	10.8

Note: n.s. is a not significant difference relative to the reference group (persons age 20 to 29 in Quebec, living as a couple, with or without children, in a region with a low concentration of manufacturing employment) at the 0.05 level. The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 to 2007.

ever, workers employed in manufacturing had a higher probability of EI use (Table 5).¹⁰ This is consistent with the findings of a previous study (Bernard 2009b), namely that job security dropped significantly for manufacturing workers, and, as a result, the difference in the duration of unemployment spells between manufacturing workers and workers in other sectors has never been so large. In other words, the job stability of manufacturing workers appears to have declined faster in regions with high manufacturing concentration, which can affect the job stability of workers in other sectors.

The risk of receiving EI for a (consecutive or not consecutive) period of one year, two years or three years or more between 2000 and 2007 (see *Models*) was also calculated. Overall, the findings show that living in a region with high manufacturing concentration

The same was also true, though to a lesser degree, for younger workers in other sectors, who were generally more likely to experience income loss if they were employed in a large urban centre than in a small city. The opposite effect was observed for older workers, who were more likely to experience income loss if they had a job in a small city.

Greater receipt of EI benefits in high-concentration regions

Overall, workers employed in a region with high manufacturing concentration were significantly more likely to receive EI benefits, irrespective of whether they were employed in manufacturing. How-

Table 5 Marginal effect on probability of being on Employment Insurance in 2007, by size of area of residence and concentration of manufacturing employment

	All regions combined	Census metropolitan areas and census agglomerations		Census agglomerations	
		1 million or less	500,000 or less	100,000 or less	30,000 or less
		%			
High concentration					
Manufacturing workers	39.1	36.3	21.9	10.6	n.s.
Workers in other sectors	17.6	16.4	5.6	4.6	26.0

Note: n.s. is a not significant difference relative to the reference group (persons age 20 to 29 in Quebec, living as a couple, with or without children, in a region with a low concentration of manufacturing employment) at the 0.05 level. The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 to 2007.

Table 6 Marginal effect on probability of being on Employment Insurance between 2000 and 2007, by size of area of residence and concentration of manufacturing employment

		Census metropolitan areas and census agglomerations		Census agglomerations	
	All regions combined	1 million or less	500,000 or less	100,000 or less	30,000 or less
Manufacturing workers					
High concentration			%		
0	-12.9	-13.1	9.0	n.s.	n.s.
1 year	-4.4	-5.3	-3.8	n.s.	n.s.
2 years	1.7	0.2	-0.4	n.s.	n.s.
3 years or more	13.8	12.6	7.8	n.s.	n.s.
Workers in other sectors					
High concentration					
0	-10.5	-10.3	-1.9	-2.1	-17.6
1 year	-1.9	-2.9	-0.7	-0.8	-7.2
2 years	3.3	1.8	n.s.	n.s.	-0.9
3 years or more	13.0	11.2	1.7	1.8	16.9

Note: n.s. is a not significant difference relative to the reference group (persons age 20 to 29 in Quebec, living as a couple, with or without children, in a region with a low concentration of manufacturing employment) at the 0.05 level.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 to 2007.

ers living in high-concentration regions with a population of 100,000 or less were not significantly more likely to receive EI than their counterparts in low-concentration regions (Table 6). In contrast, the effect on workers in other sectors tended to increase as region size decreased, rising from 13.0% for all CMAs and CAs to 16.9% for CAs with a population of 30,000 or less. In other words, manufacturing workers were more likely to receive EI if they were employed in a large urban centre, while workers in other sectors had a higher risk if their jobs were outside the major urban centres.

Increased low-income incidence in regions of high manufacturing concentration

Between 2000 and 2007, low-income incidence increased in regions with a high concentration

significantly increased the risk of receiving EI on several occasions (three years or more) during this period. It also lowered the probability of never filing an EI claim. That was true for both manufacturing workers and other workers.

Manufacturing workers in these regions were from 7.8% to 13.8% more likely to receive EI for a period of three years or more than their counterparts in low-concentration regions. For workers in other sectors, the difference was between 1.7% and 16.9% (Table 6).

The higher risk of receiving EI on several occasions in high-concentration regions disappears, however, with decreasing region size. In other words, manufacturing work-

Table 7 Marginal effect on probability of being in low income

	All regions combined	Census metropolitan areas and census agglomerations		Census agglomerations	
		1 million or less	500,000 or less	100,000 or less	30,000 or less
High concentration					
Combined population			%		
2000	-7.3	-1.8	-5.6	-5.6	n.s.
2007	10.5	16.1	11.8	16.6	34.9
Manufacturing workers					
2000	-30.2	-17.2	-18.5	-16.6	n.s.
2007	n.s.	17.4	18.8	33.5	n.s.
Workers in other sectors					
2000	4.4	6.3	n.s.	n.s.	n.s.
2007	21.1	25.6	24.6	28.1	41.6

Note: n.s. is a not significant difference relative to the reference group (persons age 20 to 29 in Quebec, living as a couple, with or without children, in a region with a low concentration of manufacturing employment) at the 0.05 level. The concentration of manufacturing employment was kept constant with that calculated in 2000.

Source: Statistics Canada, Longitudinal Administrative Database, 2000 to 2007.

of manufacturing employment (Table 7). The higher incidence affected the overall population as well as manufacturing workers and workers in other sectors. In 2000, manufacturing workers living in high-concentration regions were less likely to be in low income than their counterparts in low-concentration regions, but in 2007, they were more likely.

Workers in other sectors living in high-concentration regions were 4.4% more likely in 2000 to be in low income than their counterparts in low-concentration regions. By 2007, the difference had increased to 21.1%. The incidence was considerably greater as region size decreased: 25.6% for areas with a population of 1 million or less and 41.6% for areas with a population of 30,000 or less. The increase in low-income incidence among those workers supports the idea that the decline in manufacturing employment affected the employment and income of workers in other sectors if manufacturing was an important part of the regional economy. A similar effect among manufacturing workers was observed, but the effect on smaller regions was not significant.

Conclusion

The global slowdown in manufacturing has affected Canada in a number of ways. Plant closures and mass layoffs had an impact not only on employment and working conditions for workers in the manufacturing sector, but also on economic activity and workers in other sectors. The goal of this study was to determine whether job losses in manufacturing were actually accompanied by income

Concentration rate

The **rate of employment concentration** in manufacturing was calculated for each census metropolitan area (CMA) and each census agglomeration (CA) in 2000. It is equal to the relative proportion of local employment in manufacturing, i.e., the number of manufacturing workers divided by the total number of workers. For comparability purposes, and because 2000 was the most recent peak in manufacturing employment, the concentration rate used for the entire observation period is the 2000 rate.

CMAs and CAs with a population of 500,000 or less were divided into three equally sized groups by level of concentration of local employment in manufacturing. The categories are as follows:

- **Low concentration:** 12% or less of employed persons in the CA or CMA work in manufacturing;
- **Moderate concentration:** more than 12% but less than 20% of employed persons in the CA or CMA work in manufacturing;
- **High concentration:** 20% or more of employed persons in the CA or CMA work in manufacturing.

CMAs and CAs with a population of more than 500,000 were excluded because they could skew the results with the size of their populations.

decreases at the regional level, and, if so, whether those losses were associated with the local rate of employment concentration in the manufacturing sector. Its aim was also to determine whether those job losses were behind a widespread slowdown in employment affecting the income of workers with jobs in other sectors.

The overall growth of employment and income in Canada masked changes experienced by some population groups, particularly those living in regions of high manufacturing concentration. These regions suffered the biggest job losses, which led to an increase in the number of workers on EI at the local level. Employment income and market income also declined in these regions, whereas they rose substantially in low-concentration regions. Moreover, the slowdown in manufacturing activ-

ity had a greater effect on those who were least well off, which resulted in an increase in the number of low-income people.

At the individual level, even though manufacturing workers were more affected by recent layoffs, workers in other sectors were significantly more likely to experience income loss if their jobs were in regions with a high concentration of manufacturing employment. They were also more likely to go receive EI benefits, which appears to indicate a decrease in job stability in those regions. The bottom line is that low-income incidence increased significantly for both the population as a whole and workers in all sectors.

These findings confirm the idea that the decline in manufacturing employment had an impact on the entire economy of regions where manufacturing activity played a key

part, thus affecting the employment and income of workers in other sectors. In those regions, job and income losses among manufacturing workers may have disrupted the employment market and local consumption decisions, thereby affecting all mechanisms of regional wealth creation. Apart from those considerations, the results show that not only manufacturing workers, but all types of workers in those regions, may experience income losses when there is a slowdown in the sector.

Perspectives

■ Notes

1. For more details concerning recent trends in manufacturing, see Kowaluk and Larmour (2009).
2. For information on the relationship between manufacturing and services, see François and Woerz (2007).
3. For more information on the dynamics of the manufacturing sector in Toronto, Montréal and Vancouver, see Vinodrai (2001).
4. This applies to total income (before and after tax), market income and employment income.
5. This is further supported by the proportion of people who reported earnings from retirement-related sources, which is quite similar from one concentration category to another in 2000 and 2007. In addition, the distribution of the proportion of those earnings relative to total reported income was, for all intents and purposes, identical for the three categories.
6. The levels of loss considered are as follows: 10% or less loss of total income, between 10% and 20% loss of total income, and 20% or more loss of total income.
7. The model includes variables for province of residence, family composition and age.
8. The same patterns were found in separate analyses for employment income and market income. However, total income is a better indicator of individual standard of living because it captures changes in income composition that may be due to retirement, transition from paid employment to self-employment, or job loss.
9. The comparison here is between total income in 2000 and 2007, in 2007 constant dollars.
10. The data in Table 5 are from a simple logistic regression model on the probability of a person being on EI in 2007 if he or she was not on EI in 2000. The model uses the same specifications as the ordered model.

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Appendix Ranking of census metropolitan areas and census agglomerations by relative proportion of manufacturing employment

Low concentration of manufacturing employment

St. John's	Corner Brook	Charlottetown
Gander	Labrador City	Halifax
Cape Breton	Thompson	Grande Prairie
Fredericton	Regina	Wood Buffalo
Bathurst	Yorkton	Wetaskiwin
Rimouski	Moose Jaw	Cranbrook
Sept-Îles	Swift Current	Victoria
Val-d'Or	North Battleford	Nanaimo
Rouyn-Noranda	Prince Albert	Courtenay
Kingston	Estevan	Prince George
North Bay	Medicine Hat	Dawson Creek
Sudbury	Lethbridge	Fort St. John
Elliot Lake	Red Deer	Whitehorse
Timmins	Camrose	Yellowknife
Kenora	Lloydminster	
Portage la Prairie	Grand Centre	

Moderate concentration of manufacturing employment

Grand Falls-Windsor	Pembroke (Quebec)	Brandon
Summerside	Belleville	Saskatoon
Kentville	Peterborough	Penticton
Truro	Lindsay	Kelowna
Moncton	St. Catharines-Niagara	Vernon
Saint John	London	Kamloops
Campbellton (Quebec)	Sarnia	Chilliwack
Matane	Owen Sound	Abbotsford
Rivière-du-Loup	Barrie	Duncan
Chicoutimi-Jonquière	Orillia	Campbell River
Alma	Haileybury	Powell River
Trois-Rivières	Sault Ste. Marie	Williams Lake
Joliette	Thunder Bay	Terrace

High concentration of manufacturing employment

New Glasgow	La Tuque	Hawkesbury
Edmundston	Drummondville	Brockville
Baie-Comeau	Granby	Cobourg
Dolbeau	Saint-Hyacinthe	Port Hope
Saint-Georges	Sorel	Oshawa
Thetford Mines	Saint-Jean-sur-Richelieu	Kitchener
Sherbrooke	Salaberry-de-Valleyfield	Brantford
Magog	Lachute	Woodstock
Cowansville	Cornwall	Tillsonburg
Victoriaville	Windsor	Simcoe
Shawinigan	Collingwood	Guelph
Stratford	Midland	Quesnel
Chatham	Port Alberni	Prince Rupert
Leamington		Kitimat
Strathroy		

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Income replacement during the retirement years

Sébastien LaRochelle-Côté, Garnett Picot and John Myles

The retirement income sources of Canadians have received increased attention recently with a spate of new proposals emerging from governments, think tanks and labour organizations. Some of this attention is due to recent economic events that have affected private retirement savings and registered pension plans. But longer-term trends—such as increasing longevity, lower savings rates and higher household debt levels—also play a role.

Income support programs for seniors have a long history in Canada. The federal Old Age Security program began in 1952, replacing provincial programs dating from the 1920s. The Canada Pension Plan, designed to replace a portion of employment earnings, was introduced in 1965. Shortly thereafter, policy analysts began to question whether the retirement income system would be effective in replacing income earned during the working years.¹

An assessment of retirement income replacement requires two key components. First, long-term data on individuals' income are required. Such data covering a span of more than one-quarter of a century are available based on a sample of tax records (see *Data source and definitions*). Second, an operational definition of 'replacement rate' is required. The approach used here is to establish a baseline total income for individuals in their mid-fifties and track their inflation-adjusted income through to their mid-seventies. Incomes are adjusted to reflect changes in family size so that the replacement rates account for the estimated spending requirements of the household.

Using this definition, an earlier study focused on those with strong labour market attachment (LaRochelle-Côté et al. 2008). It found that the family income of a typical individual in his or her mid-seventies was nearly

80% of that person's income around age 55.² Among low-income individuals, the typical replacement rate was 100%; among middle-income individuals, 80%; and among high-income individuals, about 70%. The study also found that income during the retirement years has increased over time.

Other studies expanded the study of replacement rates to examine differences in various sub-groups (Schellenberg and Ostrovsky 2009) or examined alternative definitions of income (Brown et al. 2010 and Denton et al. 2009) and found similar results. The consensus is that the current retirement income system, blending public programs and private savings, provides adequate replacement rates for median workers—at least in contrast with the more pessimistic predictions of the 1960s and 1970s.

Yet median replacement rates only capture the central tendencies of the population or a defined group. They do not indicate how all individuals in the group fare. For example, the 2008 study found that one-quarter of middle-income individuals had replacement rates below 60% by the time they reached their mid-seventies. This raises the possibility that many middle-income Canadians experience a decline in economic well-being in retirement.

One key question is whether most Canadians—not just those with strong labour market attachment—achieve similar levels of retirement income. For example, spouses who have full-time employed partners, but who themselves are not working or are working part time, would have been excluded from the earlier study. Yet, the extent to which individuals maintain their pre-retirement living standards in their senior years is no less important. In all, about 50% of the population was excluded from the earlier study. This study

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Data source and definitions

This study uses annual data from the Longitudinal Administrative Database (LAD). LAD is a 20% random sample of the T1 Family File, a yearly cross-sectional file of all tax filers. Individuals selected for LAD are linked across years in order to create a longitudinal profile of each individual. LAD contains demographic, income and other taxation information for the period from 1982 to 2007. This information makes it possible to follow the evolution of the financial situation of individuals over a long period of time.

In the early 1980s, individuals who were part of families with less than \$10,000 in family adult-equivalent-adjusted (AEA) income had a much lower probability of filing since refundable tax credits were not implemented until the early 1990s. Individuals with very low permanent family incomes at age 55—below \$14,000 for a family of two, or below \$20,000 for a family of four—were therefore excluded from our sample. Overall, approximately 80% to 85% of the Canadian population is included, depending on the cohort examined.

Although most results are based on a cohort of individuals age 54 to 56 in 1983, replacement rate results were also examined for five other cohorts of younger retirees to determine whether results varied across cohorts. The five other cohorts comprised individuals 54 to 56 years of age in 1986, 1989, 1992, 1995 and 1998.

expands the scope to include 80% to 85% of the population approaching retirement and measures the extent to which family income levels are maintained in individuals' senior years.³

Income sources

Since families generally share resources, total family income is a better indicator of financial resources than individual income. All income sources from all family members are thus included in the analysis: government transfers (Old Age Security, Guaranteed Income Supplement, Canada Pension Plan, Quebec Pension Plan, and all other government transfer programs), private sources (registered pension plans and registered retirement savings plan income, earnings, investments, dividends, and capital gains) as well as income from 'other' sources. Since families also achieve some economies of scale, income levels are also adjusted to account for the size of the family.⁴ To limit the potential impact of short-run fluctuations, all income values are calculated by three-year moving averages. Income values have been deflated by using the national Consumer Price Index to represent constant 2006 dollars.

As in LaRochelle-Côté et al. (2008), tax data from the Longitudinal Administrative Databank (LAD) are used to examine the evolution of income among a group of individuals age 54 to 56 in 1983 until they reached 77 to 79 years of age in 2006 (see *Data source and definitions*). Considering individuals age 54 to 56 was necessary to increase the sample size, enabling more detailed analyses. The unit of analysis is the individual, but all incomes are reported at the family level. Income components are reported in the same manner, for instance, the values reported for investment do not refer to individual investment income, but the income of the family to which the individual belongs.

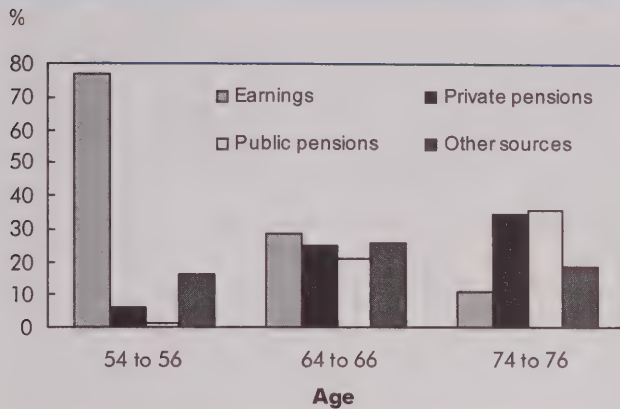
In addition to total income, four sub-categories are examined:

- earnings obtained as an employee or from self-employment;
- private pension sources, which include benefits from registered pension plans (RPP), registered retirement saving plans (RRSP), retirement income funds (RIF) and 'other income' (including severance payments, annuity payments, and other sources of private pension income);
- public pension sources, including Old Age Security (OAS), the Guaranteed Income Supplement (GIS) and the Canada and Quebec Pension Plans (CPP and QPP);
- other sources, including income from investments, capital gains and dividends, and from miscellaneous sources (e.g., employment insurance benefits, Goods and Services Tax credits).

Average total income declines with age

When they were in their mid-fifties, individuals averaged about \$50,000 in family adult-equivalent-adjusted (AEA) income before tax. Ten years later, this figure was down to \$46,700, and, 20 years later, the same individuals earned approximately \$42,700 in family AEA income.

As Canadians age, their sources of income change (Chart A). At 54 to 56 years of age, more than 75% of family income came from earnings. By age 74 to 76, private pensions accounted for about one-third of all income and public pensions for another one-third, while income from investments, capital gains and dividends account for almost 20%. Employment earnings still generated about 10% of average family income for individuals in their mid-seventies.

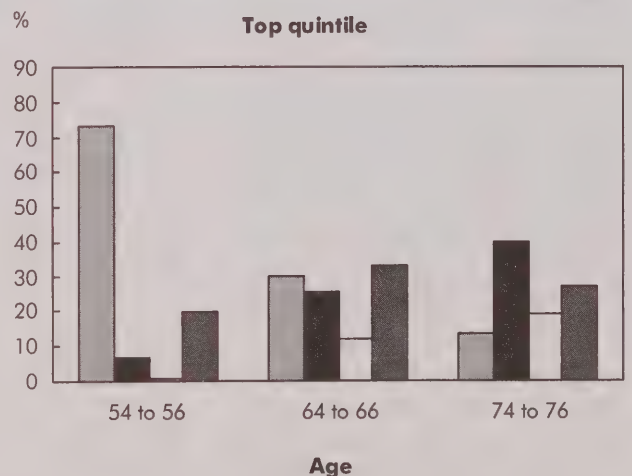
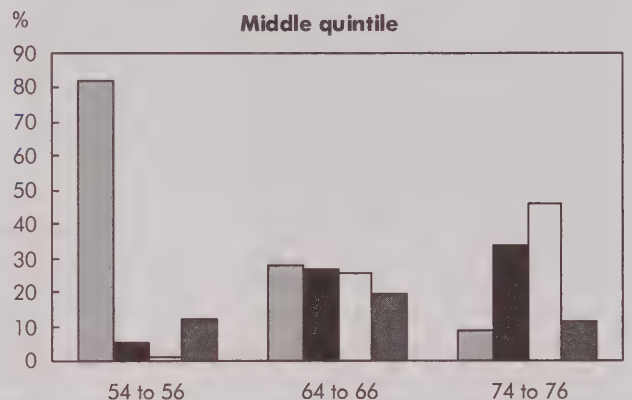
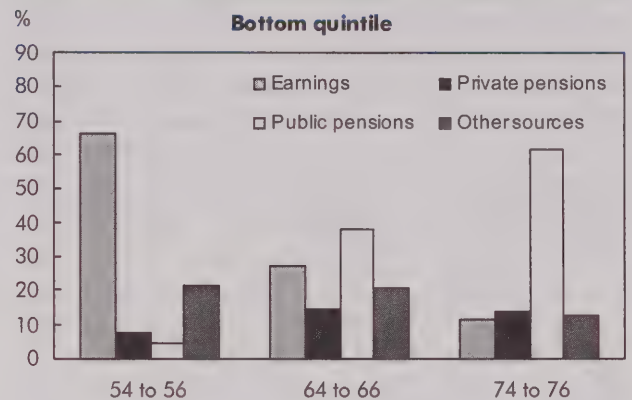
Chart A Average family adult-equivalent adjusted income before taxes

Source: Statistics Canada, Longitudinal Administrative Data, 1982 to 2007.

An individual's starting position in the income distribution may affect both subsequent income levels and the sources of income. The key question is: given a certain level of income at the beginning of the period, how do total income and its components evolve over time? Individuals are assigned to income quintiles⁵ on the basis of their AEA family income around age 55. Under this approach, each person's quintile remains fixed as he or she ages.

For those in the bottom quintile, average before-tax family income *increases* by age 65. For people in their mid-fifties, family AEA income averaged about \$20,000 (before tax) in the bottom quintile. For those in their mid-sixties, total family income rose to \$25,000 for the same individuals, and fell back \$23,400 by their mid-seventies. Labour income accounted for two-thirds of total income around age 55 for those in the bottom quintile (Chart B). By the time individuals reached their mid-seventies, income from public sources (OAS, GIS, CPP, QPP) represented 62% of total income for this group. Clearly, public pensions play a major role in the maintenance of living standards among lower-income families.

Income trajectories were quite different in the middle quintile. Individuals in that quintile saw average AEA family income fall from \$43,100 around age 55 to \$38,600 when they were in their mid-sixties, and to \$33,300 around age 75. Since income among lower-

Chart B Average family adult-equivalent adjusted income before taxes by quintile

Source: Statistics Canada, Longitudinal Administrative Data, 1982 to 2007.

income families rose with age, and fell among middle-income families, the income gap between these two groups decreased as the cohort aged.

Earnings comprised 82% of AEA family income of middle-quintile individuals around age 55, but, by age 75, public pensions also played an important role. Public pensions accounted for 46% of before-tax family income, and an additional one-third came from private pensions. Thus while public pensions comprised the largest single source of income for middle-quintile seniors more than one-half of their income came from private pensions and individual savings and investments.

Top-quintile individuals saw their average AEA family income fall as they moved from their mid-fifties to their mid-seventies—from \$99,200 to \$80,900. At all ages, income from investments, dividends and capital gains comprised a larger portion of total income compared with those in lower quintiles. For individuals around age 55, earnings represented 73% of family income and other sources (investments, dividends and capital gains) comprised 20%. By their mid-seventies, private pensions contributed the most to their family incomes (40%) for the top quintile, followed by income from investments, capital gains and dividends (27%), public pensions (19%), and earnings (14%). Hence, when individuals are in their mid-seventies, public pensions account for one-fifth of income for those in the top quintile, two-fifths for those in the middle quintile and two-thirds for those in the bottom quintile.

Replacement rates

A replacement rate measures the extent to which income flows (mainly earnings) are ‘replaced’ by various sources of income (public and private pensions, investments and earnings) as an individual makes the transition from the workforce to retirement.

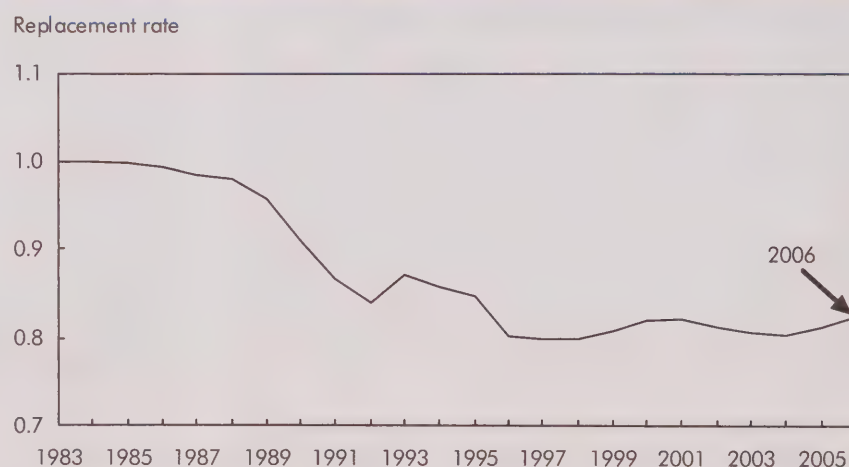
Replacement rates are calculated for each individual in each year based on his or her starting income when those individuals are in their mid-fifties.⁶ For example, the replacement rate for an individual

in 2000 is obtained by dividing his or her total family AEA income in 2000 by the total family income of that same individual in 1983 (with both values expressed in three-year moving averages). Then, for every year of the panel, the median replacement rate of a given population is calculated in order to get a sense of what should be interpreted as a ‘typical’ replacement rate. Since after-tax income is the best measure of ‘disposable’ income available for this study, it is used in the calculation of replacement rates.⁷

The median AEA family income replacement rate after age 65 is about 0.8 (or 80%) of the mid-fifties income of individuals (Chart C). Median replacement rates for the cohort of Canadians who were age 54 to 56 in 1983 fell from 1.0 (by definition) to 0.8 in the mid-1990s (when they were in their late sixties), and remained stable at this level well into the 2000s (when they were in their late seventies).⁸ By and large, these results are similar to earlier findings using a more restricted population (LaRochelle-Côté et al. 2008).

These results pertain to the median worker, and may not be representative other areas of the income distribution. A more complete picture requires an examination of replacement rates across and within quintiles.

Chart C Median replacement rates of family adult-equivalent adjusted income for all individuals age 54 to 56 in 1983



Source: Statistics Canada, Longitudinal Administrative Data, 1982 to 2007.

Higher replacement rates among lower income groups

Reflecting average income trends, replacement rates vary by the location in the income distribution (Chart D). In general, the higher the income at age 54 to 56, the lower the replacement rate during the retirement years. Based on within-quintile medians, individuals in the bottom quintile (age 54 to 56) had median replacement rates greater than 1.0. In this group, the median replacement rate rose to slightly over 1.1 in the early 1990s, and remained around 1.1 until 2006, when the cohort was age 77 to 79.

Replacement rates were lower in the middle quintile. Their median replacement rate fell to about 0.75 during the mid-1990s (for those in their late sixties), and again remained stable over the 2000s.

Persons in the top income quintile had the greatest amount of income to replace and experienced the lowest replacement rates. Median rates for this group fell to around 0.65 in the mid-1990s, and recovered to about 0.7 in the early 2000s when individuals were in their mid-seventies.

Replacement rates vary among all income levels

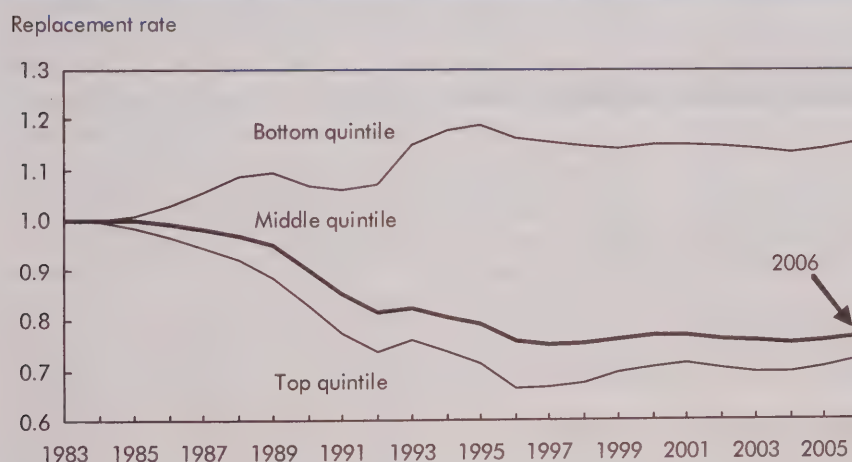
As replacement rates vary across quintiles, they may also vary *within* income quintiles. For example, not all individuals in the bottom income quintile achieved replacement rates above 100%. Similarly, not all individuals in the top income quintile had replacement rates in the 0.6 to 0.7 range. Thus we examine *distributions* of replacement rates within each income quintile at various points in time (Table 1).

By definition, all individuals had a 1.0 replacement rate in 1983. However, even if individuals within a quintile had similar income levels at age 55, replacement rates diverged as they aged.

In the bottom quintile, for example, although most individuals had replacement rates above 100%, about one-third had replacement rates below that threshold in their mid-seventies. Within that group, 24% had replacement rates between 0.8 and 1.0, and another 9% of individuals had replacement rates at or below 0.8. Conversely, more than two-thirds had replacement rates above 1.0 and 23% even had replacement rates above 1.5. To add some perspective, the average

income level before tax for individuals in their mid-fifties in the bottom quintile was approximately \$25,000.

Chart D Median replacement rates of family adult-equivalent adjusted income by income quintile



Source: Statistics Canada, Longitudinal Administrative Data, 1982 to 2007.

Compared to those in the bottom quintile, replacement rates in the middle income quintile were lower and more spread out. Just over one-third of individuals who were in the middle quintile had replacement rates between 0.6 and 0.8 in their mid-seventies. Another one-quarter replaced between 0.8 and 1.0 of their earlier income while another one-fifth had rates of 0.6 or below. On the other hand, about one in five in this quintile had replacement rates higher than 1.0. Some have argued that low replacement rates may be indicative of a lack of retirement preparation for a sizeable minority of middle-income earners (Mintz 2009).

Table 1 Replacement rate categories among individuals age 54 to 56 in 1983

	Distribution across age groups				
	Age 54 to 56 in 1983	Age 59 to 61 in 1988	Age 64 to 66 in 1993	Age 69 to 71 in 1998	Age 74 to 76 in 2003
	%				
All individuals					
≤ 0.4	0.0	3.1	3.1	2.4	2.8
> 0.4 and ≤ 0.6	0.0	7.9	13.5	16.6	16.6
> 0.6 and ≤ 0.8	0.0	17.0	25.2	31.2	29.8
> 0.8 and ≤ 1.0	100.0	24.7	20.9	22.0	22.3
> 1.0 and ≤ 1.5	0.0	36.6	25.4	20.4	20.7
> 1.5	0.0	10.7	11.9	7.4	7.8
Bottom quintile					
≤ 0.4	0.0	5.2	1.9	0.2	0.2
> 0.4 and ≤ 0.6	0.0	6.4	3.6	0.5	0.9
> 0.6 and ≤ 0.8	0.0	11.8	10.9	8.3	8.0
> 0.8 and ≤ 1.0	100.0	17.8	18.9	24.0	24.4
> 1.0 and ≤ 1.5	0.0	37.2	37.9	43.9	43.4
> 1.5	0.0	21.5	26.7	23.0	23.2
Middle quintile					
≤ 0.4	0.0	2.1	2.0	0.7	0.9
> 0.4 and ≤ 0.6	0.0	7.6	14.2	19.9	21.0
> 0.6 and ≤ 0.8	0.0	17.5	30.5	37.8	35.5
> 0.8 and ≤ 1.0	100.0	27.3	22.8	23.1	23.1
> 1.0 and ≤ 1.5	0.0	38.7	23.0	15.2	16.0
> 1.5	0.0	6.9	7.5	3.1	3.5
Top quintile					
≤ 0.4	0.0	3.4	6.4	7.7	8.4
> 0.4 and ≤ 0.6	0.0	10.8	21.0	28.1	25.9
> 0.6 and ≤ 0.8	0.0	20.3	27.2	34.1	31.1
> 0.8 and ≤ 1.0	100.0	25.3	17.8	15.6	17.7
> 1.0 and ≤ 1.5	0.0	31.2	19.3	10.6	12.2
> 1.5	0.0	9.0	8.3	4.0	4.7

Source: Statistics Canada, Longitudinal Administrative Data, 1982 to 2007.

Finally, individuals in the top income quintile also experienced variation in their replacement rates. About one-third of top-quintile individuals had replacement rates of 0.6 or below around age 75, and another one-third had replacement rates located between 0.6 and 0.8. While similar proportions in the top and middle quintiles had income replacement rates above 1.0, those in the top quintile were more likely to have a replacement rate of 0.6 or below (34% versus 22%).⁹ Although the replacement rates in

the top quintile were somewhat lower than in the middle quintile, it is worth noting that the base-period average AEA income in the top quintile was more than double the average for the middle quintile.

How are more recent cohorts doing?

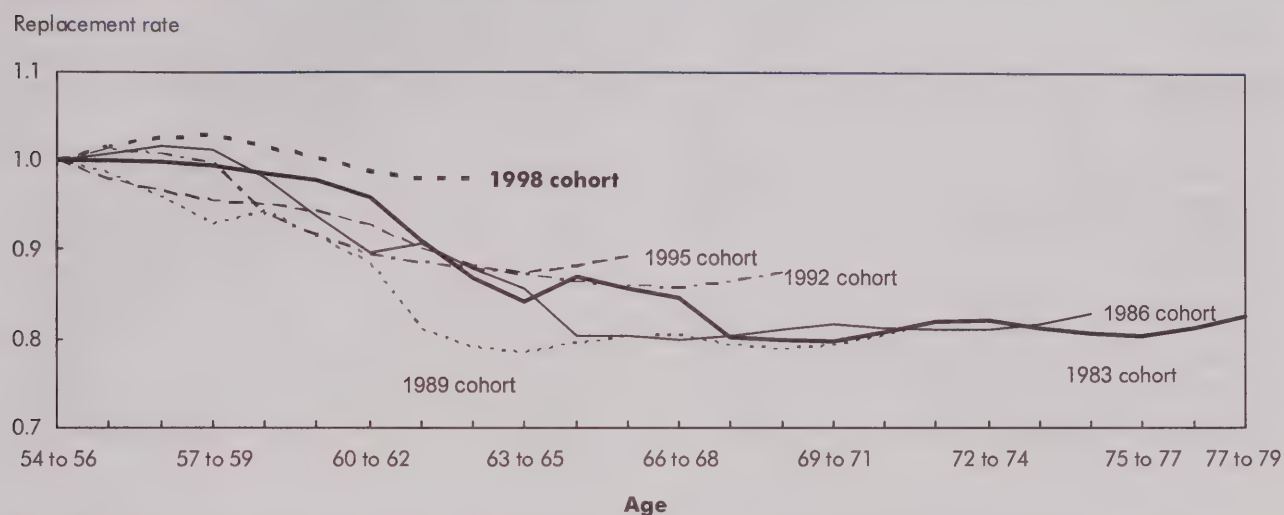
The cohort followed in this article was 54 to 56 years of age in 1983. Most of those individuals would have retired, fully or partially, by the mid-1990s. Their income replacement rates would thus be affected

by earnings patterns and transfer programs particular to that period, as well as subsequent economic events. This raises the issue of whether the patterns observed for this cohort would apply to more recent cohorts. As such, five subsequent cohorts age 54 to 56 in 1986, 1989, 1992, 1995 and 1998 were followed to 2006 (Chart E). While more recent cohorts have shorter observation spans than older cohorts, they do enable the comparison of trajectories for a minimum of eight years.

Generally, more recent cohorts have higher incomes than the 1983 cohort. When capital gains are excluded from the total, AEA family income around age 55 averaged \$49,300 for the 1983 cohort then climbed steadily to \$58,100 for the 1998 cohort. These income gains for younger cohorts relative to earlier cohorts were sustained until they were all at least in their early sixties.

Even working from the higher average income base, median replacement rates are also rising for more recent cohorts—particularly among those who reached age 55 after 1990. More detailed calculations (data not shown) indicate that median replacement rates generally increased in the bottom and middle quintiles, but no clear trend was evident for the top quintile.

Factors contributing to this increase in family income include rising earnings for older workers, particularly women, and increasing private pension income for retirees from the early 1980s to the mid-1990s. Since then, employment rates have increased for the population age 55 and over. For more detailed results, see LaRochelle-Côté et al. (2010).

Chart E Median replacement rates of family adult-equivalent adjusted income for all individuals by cohort

Source: Statistics Canada, Longitudinal Administrative Data, 1982 to 2007.

Summary

In an earlier study, LaRochelle-Côté et al. (2008) analyzed family income replacement rates for individuals who had a substantial attachment to the labour force—about 50% of those in their mid-fifties. The majority of them were able to replace more than three-quarters of their income from the time they were in their mid-fifties, even long after retirement.

This paper extends that analysis to include all those in their mid-fifties with a family income of at least \$10,000. As a result, this analysis covers a much larger group than the earlier study—80% to 85% of 54 to 56 year-olds—depending on the cohort studied.

Despite these changes, the results of the two analyses are similar. In 2006, the adjusted family income of the median senior in his late seventies was about 80% of his or her income in his or her mid-fifties. As in the earlier study, the lower the income in individuals' mid-fifties, the higher the replacement rate in their senior years. Individuals in the bottom quintile typically achieved a 110% replacement rate by their mid-sixties, while individuals in the top income quintile had replacement rates in the 0.7 range. There was some

variation within quintiles. For example, more than 20% of middle-income Canadians had replacement rates of 0.6 or below of their mid-fifties income after two decades.

Similar replacement rates were found for other cohorts of retirees who reached retirement age in the 1980s. Although data do not cover as long a period, the results suggest that replacement rates may be marginally higher for cohorts that reached age 55 in the 1990s.

Perspectives

Notes

1. See Perrin (1969) and the 1980 report of the federal Task Force on Retirement Income Policy (Government of Canada 1980).
2. More specifically, individuals in the sample had to have had wages and salaries of at least \$10,000 at age 55 in order to be included in the study. The primary concern during the 1970s was whether Canadians with significant earnings during their working years would see that income replaced as they entered their senior years. LaRochelle-Côté et al. (2008) examined that issue.

3. In this study, all individuals with a moving average of at least \$10,000 in family adult-equivalent-adjusted (AEA) income were included in the sample. The choice of this new cutoff was motivated by the fact that individuals who were part of families with less than \$10,000 in AEA income had a lower probability of filing an income tax return in the early 1980s.
4. The adult-equivalent-adjusted (AEA) family income is a per capita measure of family income that accounts for economies of scale in larger families. It is calculated by dividing family income by the square root of family size. For example, if a family of four has an unadjusted family income of \$50,000, the AEA income for that family would be \$25,000.
5. A quintile represents one-fifth of the population by total income. The bottom quintile consists of the lowest 20% in terms of total income, the middle quintile is the middle 20% and the top quintile is the highest 20%.
6. Individuals who died over the period are included in the sample until their last complete year in the data.
7. As noted earlier, a form of 'permanent' income is used, whereby the family income reported at each age is a three-year moving average. For example, the family income of someone age 55 in 1983 is really the average adult-equivalent-adjusted (AEA) family income of that individual at ages 54 to 56 (between 1982 and 1984 inclusively), and income of that same individual at age 78 is the average income over ages 77 to 79 (between 2005 and 2007 inclusively).
8. The small bump in replacement rates seen at the beginning of the 1990s coincided with a change in tax policy whereby individuals could no longer claim a deduction for capital gains realized after February 1994. This encouraged individuals to declare higher-than-usual capital gains in order to benefit from any part of their \$100,000 unused capital gains exemption. Replacement rates were smoother when capital gains were removed from the numerator and denominator. The effect of the policy change also had effects on two more years as all income figures are expressed in terms of three-year moving averages.
9. To the extent that those in the top income quintile have greater available wealth on which they can draw, as evidenced by high levels of investment earnings, replacement rates may underestimate their level of economic well-being in comparison to those in lower quintiles.

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<http://www.statcan.gc.ca/pub/11f0019m/11f0019m2010328-eng.pdf>.

In the works

Some of the topics in upcoming issues

■ Income and wealth of older immigrants in Canada

Using data from the Survey of Labour and Income Dynamics and the Survey of Financial Security, this article attempts to shed light on the income and wealth of older immigrants in Canada.

■ The impact of labour force aging on hours worked

This study looks at general trends in actual hours from 1976 to 2008, focusing on recent years in order to determine how much of the decline in work hours is attributable to the workforce aging and whether there are differences between the public sector and the private sector. Using employment projections, the study will also examine work hours during the next five years.

■ Retiring with debt

Using data from the Canadian Financial Capability Survey, this article examines the debt load situation of people in pre-retirement and those retired. The paper will include an overview of the financial situation, budget and savings behaviour, and financial knowledge of these groups, as well as an analysis of factors associated with the likelihood of carrying consumer or mortgage debt.

■ Spending and consumption patterns among seniors

Applying a synthetic cohort approach to data from the Survey of Household Spending and the Family Expenditure Survey, this article examines how consumption patterns change for a given cohort of seniors as they age.

■ Retirement, health and labour market characteristics among older workers

This article uses the Canadian Community Health Survey to examine how health factors are related to different retirement statuses (currently retired, partially retired, never retired, previously retired but returned to work), and how such relationships are associated with other labour market characteristics such as work hours, work patterns, occupation and industry.

Perspectives

What's new?

Recent reports and studies

■ From Statistics Canada

■ *Home equity and incomes of retirement-age households*

By retirement age, three-quarters of households are homeowners, and about three-quarters of these own their homes without a mortgage.

The economic benefit of owning a home is equivalent to the rent that does not have to be paid. In 2006, when the value of this benefit was taken into account for households headed by individuals age 60 to 69, it increased incomes by \$5,500 or 10%. For households headed by individuals age 70 and over, incomes rose by \$5,400 or 12%.

Across all households that own their home, the average benefit from owner-occupied housing is lowest in Newfoundland and Labrador (\$2,000) and highest in British Columbia (\$7,300). Across metropolitan areas, this benefit is lowest in Saguenay, Quebec (\$1,900), and highest in Vancouver, British Columbia (\$8,900).

For more information, see “Incomes of Retirement-age and Working-age Canadians: Accounting for Home Ownership,” *Economic Analysis Research Paper Series*, Statistics Canada.

■ *Employment Insurance Coverage Survey*

As a result of the labour market downturn, the unemployment rate rose from 6.1% in 2008 to 8.3% in 2009. On average, there were 1.5 million unemployed in Canada in 2009.

Among the 1.04 million unemployed individuals who contributed to the Employment Insurance (EI) program in 2009, 857,000 had a recent job separation that met the EI program criteria. Of those, 86% were eligible to receive regular EI benefits because they worked enough hours, up from 82% in 2008.

Of the unemployed individuals who had contributed to the EI program and had a valid job separation in 2009, 65% were men, the majority of whom (87%) were eligible for regular benefits, up from 85% in 2008.

About 84% of the unemployed women who were contributors with a valid job separation were eligible for EI benefits in 2009, an increase from 78% a year earlier.

Coverage and eligibility of mothers for maternity or parental benefits have varied little from 2003 to 2009 nationally.

In 2009, 76% of all recent mothers (with a child age 12 months or less) had insurable employment; among these insured mothers, 88% were receiving maternity or parental benefits. Both rates were unchanged from 2008.

Quebec, which has the Quebec Parental Insurance Plan (QPIP), had the highest share of recent mothers with insurable employment (82%) and the highest share of insured recent mothers receiving maternity or parental benefits (95%).

Introduced in 2006 and including leave that applies exclusively to fathers, the QPIP continued to have a major impact on the number of fathers who claimed or intended to claim parental benefits—the proportion of fathers in Quebec who took or intended to take parental leave nearly tripled since the introduction of the plan, from 28% in 2005 to 79% in 2009.

Outside Quebec, 12.8% of recent fathers took or intended to take parental leave in 2009, compared with 10.4% in 2008.

For more information, see the June 21, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Labour productivity*

The labour productivity of Canadian businesses rose 0.7% in the first quarter of 2010, following an increase of 1.2% in the previous quarter.

The pace of growth in the real gross domestic product of businesses accelerated in the first quarter (+1.8%) compared with the previous quarter (+1.4%). This acceleration was largely due to spending on consumer goods and services, spending on shelter, and inventory accumulation.

Hours worked in Canadian businesses rose 1.1% in the first quarter, following two quarters of slight gains. That was the highest quarterly growth rate since the second quarter of 2004. Employment was up 0.7%, its biggest increase since the first quarter of 2008, while hours worked per job increased 0.4%.

In the United States, productivity gains in the business sector slowed to 0.6% in the first quarter, slightly lower than Canada's growth rate.

In the first quarter, productivity gains in Canadian businesses outpaced the 0.2% increase in hourly compensation. As a result, unit labour costs of Canadian businesses in Canadian dollars fell 0.5%. In the previous three quarters, hourly compensation and productivity grew at a similar rate.

For more information, see the June 15, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Foreign nationals working temporarily in Canada*

Temporary workers are admitted to Canada to address specific labour shortages, to facilitate the transfer of staff within multinational companies and to fulfil Canada's obligations under international trade agreements. Other non-permanent residents who may be permitted to work include foreign students attending a Canadian institution and refugee claimants.

In 2006, there were 230,000 non-permanent residents age 15 and over. Of these, over 112,000 were working in Canada at the time of the 2006 Census and about 84% worked full time, more than double the number in 1996.

While they make up less than 1% of all full-time workers in Canada, non-permanent residents play an important role in the labour market in some regions,

sectors and occupations. In 2006, non-permanent residents accounted for more than 20% of people employed full time as a nanny or parent's helper, as well as 14% of postsecondary teaching and research assistants, 9% of harvesting labourers, 8% of nursery workers and 6% of physicists and astronomers.

Women who are non-permanent residents and employed full time work most often as caregivers and domestic helpers. In 2006, most women in these occupations were from the Philippines. Non-permanent resident males, especially those from Mexico, Central America and the Caribbean, were more often employed in agriculture.

For more information, see "Foreign nationals working temporarily in Canada," *Canadian Social Trends*, June 2010, Statistics Canada.

■ *Income of Canadians*

Median after-tax income for families with two or more people, adjusted for inflation, was \$63,900 in 2008, virtually unchanged from 2007. This followed four years of growth.

For unattached individuals, after-tax income also remained unchanged, at \$24,900. This was the first time in three years in which no significant change was observed.

In 2008, the 20% of persons with the highest family after-tax income had, on average, 5.4 times the family after-tax income as those in the lowest 20%. This ratio has been virtually unchanged since 2000.

Just over 3 million Canadians lived in low income in 2008, virtually unchanged from 2007. This represents about 9% of the population. The proportion of children in low-income families was 9% in 2008, half the peak of 18% in 1996.

For more information, see the June 17, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ *Employer pension plans*

The market value of employer-sponsored pension funds amounted to \$920.4 billion at the end of the fourth quarter of 2009, up 2.5% from the previous quarter. This was the third consecutive quarter of growth in pension fund assets, as they rebounded from significant losses in 2008 and in the first quarter of 2009.

Just over 6.0 million Canadian workers are members of employer pension plans. Of this group, 4.9 million workers are members of trusted plans. The remaining 1.1 million members with employer pension plans are managed principally by insurance company contracts.

For more information, see the June 10, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ From other organizations

■ *Multiple jobholding in the U.S. during the 2000s*

This article discusses the measurement of multiple jobholding, examines historical trends, and provides an overview of the characteristics of multiple jobholders. In 2009, more than 7 million workers in the United States held more than one job, and the multiple jobholding rate was 5.2%. Both the number of multiple jobholders and the rate of multiple jobholding have been stable in recent years and remain below the levels recorded during the mid-1990s. Among the occupational groups, the multiple jobholding rates were highest for workers in professional and related occupations and service occupations.

Multiple jobholders worked an average of 46.8 hours per week in 2009, while workers with one job worked fewer hours on average (35.8 hours per week). This pattern holds across all of the major demographic groups. Women multiple jobholders were nearly twice as likely as men to work at multiple part-time jobs. Economic factors continued to predominate among the reasons for having multiple jobs. See "Multiple jobholding during the 2000s" by Steven F. Hipple, *Monthly Labor Review*, July 2010, U.S. Bureau of Labor Statistics.

■ *Compensation costs in manufacturing*

The United States remains the world's leading producer of manufactured goods, accounting for 17.5% of total world manufacturing output in 2008. However, manufacturing employment in the United States has been declining over the long term, partly because of rising productivity and partly because of the emergence of developing economies as important producers and exporters of manufactured goods.

One of the important factors used in evaluating international manufacturing competitiveness is the hourly compensation cost. Average compensation costs in industries within the manufacturing sector, however, can differ greatly from the average cost of manufacturing compensation.

This article compares hourly compensation cost data from 1975 to 2007 across 18 industries within manufacturing in the United States and in selected countries, including Canada, Japan, France, Germany, Italy, the United Kingdom, Mexico, South Korea, Taiwan, and Sweden. See "Compensation costs in manufacturing across industries and countries, 1975–2007" by Elizabeth Zamora and Jacob Kirchmer, *Monthly Labor Review*, June 2010, U.S. Bureau of Labor Statistics.

Perspectives

Varia

In this issue: Work absences in 2009 and Gambling, 2009

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Property taxes – Autumn 2003
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Residential construction – Autumn 2005
Education – Winter 2005
Personal debt – Spring 2007
Provincial labour force differences
by education – Summer 2008

CONTACTS

Administrative data

Small area and administrative data
Customer Services
613-951-9720

Business surveys

*Annual Survey of Manufactures
and Logging*
Client Services
613-951-9497

Annual surveys of service industries
Client Services
613-951-4612

*Business Conditions Survey of
Manufacturing Industries*
Claude Robillard
613-951-3507

Census

Labour force characteristics
Sandra Swain
613-951-6908

Income statistics
Eric Olson
613-951-0220

Employment and income surveys

Labour Force Survey
Marc Lévesque
613-951-4090

*Survey of Employment, Payrolls
and Hours*
Sylvie Picard
613-951-4003

*Employment Insurance
Statistics Program*
Gilles Groleau
613-951-4091

Major wage settlements
Workplace Information Directorate
(Human Resources and Social
Development Canada)
819-997-3117 or 1-800-567-6866

Labour income
Anna MacDonald
613-951-3784

Survey of Labour and Income Dynamics
Survey of Financial Security
Survey of Household Spending
Client Services
613-951-7355 or 1-888-297-7355

General Social Survey

Education, Work and Retirement
Aging and Social Support
Time Use
Client Services
613-951-5979

Pension surveys

Pension Plans in Canada Survey
Bruno Pépin
613-951-4023

*Quarterly Survey of Trusteed
Pension Funds*
Gregory Sannes
613-951-4034

Special surveys

Adult Education and Training Survey
Client Services
613-951-7608 or 1-800-307-3382

National Graduates Survey
Client Services
613-951-7608

Work absences in 2009

There are many kinds of absence. Some, such as annual vacation, are generally considered beneficial for both the organization and the employee. Since they are usually scheduled, their effect on the organization can be fairly easily absorbed; the same can be said of statutory holidays. Other absences, such as those caused by illness and family-related demands, are generally unavoidable, as are those due to inclement weather.

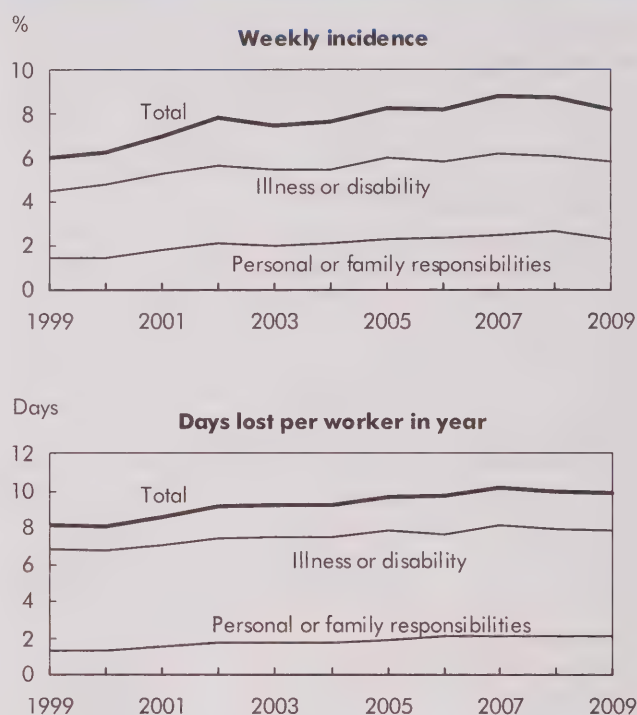
Absenteeism, a term used to refer to absences that are avoidable, habitual and unscheduled, is a source of irritation to employers and co-workers. Such absences are disruptive to proper work scheduling and output, and costly to an organization and the economy as a whole. Although absenteeism is widely acknowledged to be a problem, it is not easy to quantify. The dividing line between avoidable and unavoidable is difficult to draw, and absenteeism generally masquerades as legitimate absence. The Labour Force Survey (LFS) can provide measures of time lost because of personal reasons—that is, illness or disability, and personal or family responsibilities. However, within these categories, it is impossible to determine if an absence is avoidable or unscheduled. LFS data on absences for personal reasons can, however, be analyzed to identify patterns or trends that indicate the effect of absenteeism (see *Data source and definitions*).

Recent trends—1999 to 2009

Since 2000, both the incidence and the number of days lost for personal reasons (illness or disability, and personal or family responsibilities) have shown a rising trend (Chart). Several factors have contributed: notably, an aging workforce, the growing share of women in the workforce (especially those with young children), high worker stress,¹ and more generous sick- and family-related leave benefits.

In an average week in 1999, excluding women on maternity leave,² 6.0% of all full-time employees holding one job were absent from work for all or part of the week for personal reasons. By 2009, the figure had risen to 8.2% (890,000) (Table 1). Total work time missed also rose, from 3.2% of the scheduled week in

Chart Work absence rates, 1999 to 2009



Source: Statistics Canada, Labour Force Survey.

1999 to 3.9% in 2009; this was slightly down from 2008. Extrapolated over the full year, work time lost for personal reasons increased from the equivalent of 8.1 days per worker in 1999 to 9.8 days in 2009.

Variations in absence rates in 2009

Absence for personal reasons differs among various worker groups. Several factors are responsible, principally working conditions (physical environment, degree of job stress, employer-employee relations, collective agreement provisions, work schedules);

adequacy and affordability of community facilities such as child-care centres and public transportation; family circumstances, especially the presence of pre-school children or other dependent family members; and physical health of the worker, a factor closely related to age. Measuring the effects of these and other contributing factors is not easy since many are not captured by the LFS. However, some insight is gained by examining personal absences in 2009 by selected demographic characteristics, occupation and industry, and other attributes such as union and job status.

Demographic differences

In 2009, excluding women on maternity leave, an estimated 8.2% of full-time employees missed some work each week for personal reasons: 5.8% for own illness or disability, and 2.3% for personal or family responsibilities (Table 2). As a result, full-time employees lost 3.9% of their work time each week.

On average, each full-time employee lost 9.8 days in 2009 for personal reasons (7.8 for own illness or disability plus 2.1 for personal or family demands). This amounted to an estimated 107 million workdays for all full-time employees. Men lost fewer days than women—8.6 (6.6 for illness or disability plus 2.1 for personal or family demands) versus 11.4 (9.3 plus 2.0).

The presence of pre-school aged children exerts a strong influence on work absences for personal or family responsibilities.³ In 2009, full-time employees in families with at least one pre-school aged child lost an average of 6.0 days, compared with only 1.5 for those in families without children.

Workdays missed because of illness or disability tended to rise with age, from an average of 6.5 days for youth (15 to 19) to 12.5 for full-time employees aged 55 to 64.

Industry and sector

Work absence rates differ by sector (public or private) and industry, with almost all of the difference arising from illness and disability absences (Table 3). Contributing factors include the nature and demands of the job, the male–female composition of the workforce, and the union density—the last being a strong determinant of the presence of paid sick or family leave.

Full-time employees in the public sector (more likely unionized or female) lost more work time (12.6 days) in 2009 for personal reasons than their private-sector counterparts (8.9 days).

At the major (2-digit) industry level, the most work-days were missed by employees in health care and social assistance (14.1 days), transportation and warehousing (13.0), and public administration (12.5).

The lowest averages were recorded by full-time workers in primary industries (6.5) and in professional, scientific and technical services (6.7).

Occupation

Contributing factors for absence rates by occupation are similar to those for industry (Table 4). Again, as by major industry, differences arise mainly from time lost due to illness or disability.

The most days lost in 2009 were recorded for full-time employees in health occupations (15.0), and occupations unique to production (12.6). Workers in management (6.3), in occupations unique to primary industry (6.7) and in natural and applied sciences (7.4) recorded the fewest days lost.

Union coverage, job status, workplace size and job tenure

Full-time workers who belonged to unions or were covered by collective agreements missed more work-days on average in 2009 for personal reasons than their non-unionized counterparts (13.7 versus 8.0) (Table 5).

Workers with permanent jobs (more likely to be unionized) lost more workdays (10.0) than those whose jobs were not permanent (7.7).

Days lost tended to rise with workplace size, increasing from a low of 8.1 in workplaces with fewer than 20 employees (firms more likely to have low union rates) to 12.3 in workplaces with more than 500 employees (firms likely to have high union rates).

Days lost tended to rise with job tenure, with almost all the differences arising from illness and disability. Employees with tenure of up to one year lost 7.1 days, while those with over 14 years lost 11.5 days (the latter group were also likely older).

Province and CMA

Work absence levels differed by geographic area (Table 6), with most of the variation again arising from illness or disability.

Full-time employees in Quebec (11.8) and Newfoundland and Labrador (11.5) lost the most work time in 2009. Those in Alberta (7.9) and Prince Edward Island (8.6) lost the least.

Among the census metropolitan areas, Gatineau (15.1), Greater Sudbury (12.4) and Kingston (12.3) lost the most days per full-time worker. Calgary (7.7), Toronto (8.1) and Edmonton (8.1) had the least.

Perspectives

■ Notes

1. For more information on this subject, see Margot Shields, "Stress, health and the benefit of social support," *Health Reports* (Statistics Canada Catalogue 82-003-X) vol. 15, no. 1, January 2004. Also see Cara Williams, "Sources of workplace stress," *Perspectives on Labour and Income* (Statistics Canada Catalogue 75-001-X) vol. 4, no. 6, June 2003 online edition.
2. Exclusion of maternity leave started in 1997 with the introduction of the revised Labour Force Survey questionnaire.
3. The data show an increasing rate for men, which is likely tied to their greater use of paid paternity (in Quebec only) and parental leave. Currently, men on such leave are included in the calculation, but they will be excluded in the near future, as are women on maternity leave.

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Data source and definitions

The data in this article are annual averages from the **Labour Force Survey (LFS)**. They refer to full-time employees holding only one job. Part-time, self-employed and unpaid family workers are excluded because they generally have more opportunity to arrange their work schedules around personal or family responsibilities. Multiple-job holders, too, are excluded because it is not possible, using LFS data, to allocate time lost, or the reason for it, to specific jobs. Women on maternity leave are also excluded. However, men using paid paternity (in Quebec only) and parental leave are currently included in the calculation, but they will be excluded in the near future, as are women on maternity leave.

Some human resource practitioners exclude persons on long-term illness or disability leave (exceeding one year) from their attendance management statistics. Such persons are, however, included in Statistics Canada's work absence estimates if they count themselves as employed (that is, they continue to receive partial or full pay from their employer). In 2009, the number of employed persons on such long-term illness or disability leave averaged 26,700 in a typical week. Their exclusion would have reduced the weekly work absence incidence for illness or disability from 5.8% to 5.6%, the inactivity rate from 3.1% to 2.9%, and days lost per worker that year from 7.8 to 7.2.

Personal reasons for absence are split into two categories: 'own illness or disability' and 'personal or family responsibilities' (caring for own children, caring for elder relative, and other personal or family responsibilities). Absences for these two types of reasons represented 27% of all time lost by full-time paid workers each week in 2009. Vacations, which accounted for 40% of total time away from work, are not counted in this article, nor are statutory holidays, which represented 15%. Maternity leave represented 11% and other reasons, 7%.

The **incidence of absence** is the percentage of full-time paid workers reporting some absence in the reference week. In calculating incidence, the length of work absence—whether an hour, a day, or a full week—is irrelevant.

The **inactivity rate** shows hours lost as a proportion of the usual weekly hours of full-time paid workers. It takes into account both the incidence and length of absence in the reference week.

Days lost per worker are calculated by multiplying the inactivity rate by the estimated number of working days in the year (250).

Reasons for work absences in the LFS

The LFS sets out the following reasons for being away from work:

- own illness or disability
- caring for own children
- caring for elder relative (60 years or older)
- maternity leave (women only)
- other personal or family responsibilities
- vacation
- labour dispute (strike or lockout)
- temporary layoff due to business conditions
- holiday (legal or religious)
- weather
- job started or ended during week
- working short time (because of material shortages, plant maintenance or repair, for instance)
- other

As normally published, personal or family responsibilities consist of caring for own children, caring for elder relative, and other personal or family responsibilities.

Table 1 Absence rates for full-time employees by sex, 1999 to 2009¹

	Incidence ²			Inactivity rate ³			Days lost per worker in year ⁴		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
	%			%			days		
Both sexes									
1999	6.0	4.5	1.5	3.2	2.7	0.5	8.1	6.8	1.3
2000	6.3	4.8	1.5	3.2	2.7	0.5	8.0	6.7	1.3
2001	7.0	5.3	1.8	3.4	2.8	0.6	8.5	7.0	1.5
2002	7.8	5.6	2.1	3.6	3.0	0.7	9.1	7.4	1.7
2003	7.5	5.5	2.0	3.7	3.0	0.7	9.2	7.5	1.7
2004	7.6	5.5	2.1	3.7	3.0	0.7	9.2	7.5	1.7
2005	8.3	6.0	2.3	3.9	3.1	0.7	9.6	7.8	1.8
2006	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
2007	8.8	6.2	2.5	4.1	3.2	0.8	10.2	8.1	2.1
2008	8.7	6.1	2.6	4.0	3.2	0.9	10.0	7.9	2.1
2009	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Men									
1999	5.2	3.9	1.3	2.8	2.4	0.4	7.0	5.9	1.1
2000	5.5	4.1	1.4	2.8	2.4	0.4	7.0	5.9	1.1
2001	6.1	4.6	1.6	3.1	2.5	0.5	7.6	6.3	1.3
2002	6.7	4.8	1.9	3.2	2.6	0.6	8.0	6.5	1.6
2003	6.5	4.7	1.8	3.3	2.6	0.6	8.2	6.6	1.5
2004	6.6	4.6	2.0	3.2	2.6	0.7	8.0	6.4	1.6
2005	7.2	5.2	2.1	3.4	2.7	0.7	8.6	6.9	1.7
2006	7.2	5.1	2.1	3.5	2.7	0.8	8.7	6.7	1.9
2007	7.5	5.1	2.4	3.5	2.7	0.8	8.8	6.7	2.1
2008	7.5	5.1	2.4	3.5	2.7	0.8	8.8	6.7	2.1
2009	7.0	4.9	2.2	3.5	2.6	0.8	8.6	6.6	2.1
Women									
1999	7.1	5.4	1.8	3.8	3.2	0.6	9.6	8.0	1.6
2000	7.5	5.7	1.8	3.8	3.2	0.6	9.4	7.9	1.5
2001	8.2	6.2	2.0	3.9	3.2	0.7	9.8	8.0	1.8
2002	9.2	6.7	2.4	4.3	3.5	0.8	10.7	8.7	1.9
2003	8.9	6.6	2.3	4.3	3.5	0.8	10.7	8.8	1.9
2004	8.9	6.6	2.3	4.3	3.6	0.7	10.8	9.0	1.9
2005	9.6	7.0	2.6	4.5	3.7	0.8	11.2	9.1	2.0
2006	9.5	6.8	2.7	4.5	3.5	1.0	11.2	8.8	2.4
2007	10.3	7.5	2.8	4.8	3.9	0.9	12.0	9.9	2.1
2008	10.2	7.3	2.8	4.7	3.8	0.9	11.8	9.6	2.2
2009	9.5	7.0	2.5	4.5	3.7	0.8	11.4	9.3	2.0

1. Excluding maternity leave. However, men on paid paternity (in Quebec only) or parental leave are currently included in the calculation, but in the near future men on such leave will be excluded, as are women on maternity leave.

2. Absent workers divided by total.

3. Hours absent divided by hours usually worked.

4. Inactivity rate multiplied by working days in year (250).

Source: Statistics Canada, Labour Force Survey.

Table 2 Absence rates for full-time employees by sex, age, education and presence of children, 2009¹

	Incidence ²			Inactivity rate ³			Days lost per worker in year ⁴		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
Age	%			%			days		
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
15 to 19	6.6	4.7	1.9	2.6	1.9	0.7	6.5	4.8	1.8
20 to 24	6.9	5.0	1.9	2.8	2.1	0.6	7.0	5.4	1.6
25 to 34	8.4	5.7	2.7	3.6	2.6	1.0	9.1	6.6	2.5
35 to 44	8.6	5.9	2.8	4.0	3.0	1.0	10.1	7.6	2.5
45 to 54	7.9	5.9	2.0	4.0	3.4	0.6	10.1	8.6	1.6
55 to 64	8.7	6.6	2.1	5.0	4.3	0.7	12.5	10.7	1.8
65 and over	7.7	5.9	1.8	4.0	3.6	0.4	9.9	8.9	1.0
Men	7.0	4.9	2.2	3.5	2.6	0.8	8.6	6.6	2.1
15 to 19	6.3	4.3	2.0	2.6	1.8	0.8	6.4	4.5	1.9
20 to 24	6.1	4.3	1.8	2.6	1.9	0.7	6.6	4.9	1.7
25 to 34	7.3	4.7	2.6	3.3	2.1	1.1	8.2	5.4	2.8
35 to 44	7.5	4.9	2.6	3.6	2.5	1.1	9.0	6.3	2.7
45 to 54	6.6	4.8	1.8	3.4	2.8	0.5	8.5	7.1	1.4
55 to 64	7.5	5.7	1.7	4.4	3.9	0.5	11.1	9.7	1.3
65 and over	7.1	5.3	1.8	3.7	3.3	0.4	9.3	8.4	1.0
Women	9.5	7.0	2.5	4.5	3.7	0.8	11.4	9.3	2.0
15 to 19	7.2	5.5	F	2.7	2.1	F	6.8	5.4	F
20 to 24	7.9	6.0	1.9	3.0	2.4	0.6	7.6	6.1	1.5
25 to 34	9.8	7.0	2.8	4.2	3.3	0.8	10.4	8.3	2.1
35 to 44	10.1	7.0	3.0	4.6	3.7	0.9	11.5	9.2	2.3
45 to 54	9.3	7.1	2.2	4.8	4.1	0.7	12.1	10.3	1.8
55 to 64	10.0	7.6	2.5	5.7	4.7	0.9	14.2	11.8	2.3
65 and over	8.9	7.2	F	4.5	4.1	F	11.3	10.2	F
Educational attainment									
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Less than grade 9	7.4	5.6	1.7	4.2	3.7	0.5	10.5	9.2	1.3
Some secondary	9.0	6.7	2.4	5.0	4.1	0.9	12.6	10.3	2.2
High school graduation	7.7	5.6	2.1	3.9	3.1	0.8	9.7	7.8	1.9
Some postsecondary	8.6	6.1	2.5	3.9	3.0	0.8	9.7	7.6	2.1
Postsecondary certificate or diploma	8.7	6.2	2.4	4.3	3.5	0.8	10.7	8.6	2.1
University degree	7.5	5.1	2.4	3.1	2.3	0.9	7.8	5.6	2.1
Presence of children									
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
With children	9.0	5.9	3.1	4.3	3.1	1.2	10.7	7.8	2.9
Preschoolers-under 5 years	10.8	5.8	5.0	5.2	2.8	2.4	12.9	7.0	6.0
5 to 12 years	8.9	6.0	2.9	3.9	3.1	0.8	9.7	7.7	1.9
13 years and over	7.7	5.8	2.0	4.0	3.4	0.6	10.1	8.5	1.6
Without children	7.6	5.8	1.8	3.7	3.1	0.6	9.2	7.7	1.5

1. Excluding maternity leave. However, men on paid paternity (in Quebec only) or parental leave are currently included in the calculation, but in the near future men on such leave will be excluded, as are women on maternity leave.

2. Absent workers divided by total.

3. Hours absent divided by hours usually worked.

4. Inactivity rate multiplied by working days in year (250).

Source: Statistics Canada, Labour Force Survey.

Table 3 Absence rates for full-time employees by industry and sector, 2009¹

	Incidence ²			Inactivity rate ³			Days lost per worker in year ⁴		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
		%			%		days		
All industries	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Public employees	10.1	7.6	2.5	5.1	4.1	0.9	12.6	10.3	2.3
Private employees	7.5	5.3	2.3	3.6	2.8	0.8	8.9	7.0	2.0
Goods-producing	7.5	5.1	2.4	3.7	2.9	0.8	9.3	7.2	2.1
Primary	5.4	3.6	1.8	2.6	1.9	0.7	6.5	4.8	1.7
Agriculture	6.1	3.5	2.6	2.7	1.8	0.9	6.8	4.6	2.2
Other	5.1	3.6	1.5	2.6	1.9	0.6	6.4	4.8	1.6
Utilities	8.0	5.7	2.3	3.9	3.2	0.7	9.7	7.9	1.8
Construction	7.0	4.6	2.4	3.5	2.6	0.8	8.7	6.6	2.0
Manufacturing	8.1	5.6	2.5	4.1	3.2	0.9	10.2	8.0	2.3
Durable	8.1	5.4	2.7	4.0	3.0	1.0	9.9	7.4	2.4
Non-durable	8.1	5.8	2.3	4.3	3.5	0.8	10.7	8.7	2.0
Service-producing	8.4	6.1	2.3	4.0	3.2	0.8	10.0	8.0	2.0
Trade	7.4	5.2	2.2	3.4	2.6	0.7	8.4	6.6	1.8
Wholesale	7.3	4.8	2.5	2.9	2.2	0.7	7.4	5.6	1.8
Retail	7.4	5.4	2.0	3.6	2.8	0.7	8.9	7.1	1.8
Transportation and warehousing	8.5	6.3	2.2	5.2	4.2	1.0	13.0	10.6	2.4
Finance, insurance, real estate and leasing	7.1	5.0	2.2	3.2	2.5	0.7	7.9	6.2	1.7
Finance and insurance	7.4	5.1	2.3	3.3	2.6	0.7	8.3	6.5	1.8
Real estate and leasing	6.0	4.3	1.8	2.6	2.0	0.6	6.6	5.1	1.5
Professional, scientific and technical	7.4	4.7	2.7	2.7	1.9	0.8	6.7	4.7	2.0
Business, building and support services	8.9	6.7	2.2	4.2	3.4	0.8	10.5	8.4	2.1
Educational services	8.9	6.5	2.4	4.0	3.2	0.9	10.1	7.9	2.1
Health care and social assistance	10.5	8.3	2.2	5.6	4.8	0.8	14.1	12.1	2.0
Information, culture and recreation	7.5	5.6	1.9	3.7	3.0	0.7	9.2	7.4	1.8
Accommodation and food services	6.6	4.7	1.9	3.2	2.6	0.7	8.1	6.4	1.7
Other services	7.1	4.8	2.3	3.0	2.2	0.8	7.6	5.5	2.1
Public administration	10.8	7.7	3.1	5.0	3.9	1.1	12.5	9.8	2.7
Federal	13.6	9.0	4.6	5.8	4.2	1.6	14.6	10.5	4.0
Provincial	9.6	7.6	2.1	4.7	4.1	0.7	11.9	10.1	1.7
Local, other	8.2	6.1	2.1	4.2	3.4	0.7	10.4	8.6	1.8

1. Excluding maternity leave. However, men on paid paternity (in Quebec only) or parental leave are currently included in the calculation, but in the near future men on such leave will be excluded, as are women on maternity leave.

2. Absent workers divided by total.

3. Hours absent divided by hours usually worked.

4. Inactivity rate multiplied by working days in year (250).

Source: Statistics Canada, Labour Force Survey.

Table 4 Absence rates for full-time employees by occupation, 2009¹

	Incidence ²			Inactivity rate ³			Days lost per worker in year ⁴		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
		%			%			days	
All occupations	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Management	5.7	3.8	1.9	2.5	1.9	0.6	6.3	4.7	1.6
Business, finance and administrative	9.0	6.3	2.7	4.1	3.1	0.9	10.1	7.9	2.3
Professional	8.3	5.4	2.8	3.5	2.6	0.9	8.8	6.4	2.3
Financial and administrative	8.1	5.6	2.5	3.6	2.7	0.8	8.9	6.8	2.1
Clerical	9.7	6.9	2.8	4.4	3.5	0.9	11.1	8.8	2.3
Natural and applied sciences	7.6	5.0	2.6	2.9	2.1	0.9	7.4	5.2	2.2
Health	10.7	8.7	1.9	6.0	5.2	0.8	15.0	13.1	1.9
Professional	6.8	5.3	F	3.3	2.6	F	8.2	6.6	F
Nursing	11.0	9.2	1.8	6.7	5.8	0.9	16.8	14.6	2.1
Technical	10.8	8.5	2.2	5.7	4.9	0.8	14.3	12.2	2.1
Support staff	11.7	9.8	1.9	6.7	6.0	0.7	16.8	15.1	1.7
Social and public service	9.0	6.5	2.5	3.9	3.0	0.9	9.6	7.5	2.1
Legal, social and religious	9.3	6.5	2.8	3.9	3.0	0.9	9.7	7.5	2.1
Teachers and professors	8.7	6.4	2.3	3.8	3.0	0.9	9.6	7.4	2.2
Secondary and elementary	10.0	7.6	2.4	4.4	3.5	0.9	11.0	8.8	2.2
Other	5.6	3.6	2.0	2.5	1.7	0.8	6.3	4.3	2.0
Culture and recreation	7.8	5.4	2.5	3.0	2.3	0.7	7.5	5.7	1.9
Sales and service	7.4	5.5	1.9	3.8	3.1	0.7	9.5	7.7	1.8
Wholesale	5.5	3.7	1.9	2.3	1.8	0.5	5.7	4.4	1.3
Retail	7.4	5.5	1.9	3.5	2.9	0.7	8.9	7.1	1.7
Food and beverage	6.3	4.5	1.8	3.1	2.4	0.7	7.8	6.1	1.7
Protective services	8.0	6.3	1.7	5.1	4.2	0.9	12.8	10.6	2.2
Childcare and home support	9.9	7.1	2.8	4.4	3.7	0.7	11.0	9.2	1.8
Travel and accommodation	8.7	6.5	2.1	4.7	3.8	0.9	11.8	9.6	2.2
Trades, transport and equipment operators	8.0	5.7	2.4	4.3	3.4	0.9	10.8	8.6	2.2
Contractors and supervisors	7.5	4.8	2.6	3.6	3.0	0.7	9.0	7.4	1.7
Construction trades	8.4	5.9	2.5	4.4	3.5	0.9	10.9	8.7	2.3
Other trades	7.8	5.4	2.4	4.0	3.0	0.9	9.9	7.6	2.3
Transport equipment operators	7.2	5.3	1.9	4.5	3.7	0.8	11.2	9.3	2.0
Helpers and labourers	9.8	7.0	2.8	5.2	4.2	1.0	12.9	10.4	2.5
Occupations unique to primary industry	5.2	3.4	1.9	2.7	2.0	0.7	6.7	4.9	1.8
Occupations unique to production	9.3	6.7	2.6	5.0	4.1	0.9	12.6	10.3	2.3
Machine operators and assemblers	9.3	6.6	2.6	4.9	4.0	0.9	12.3	10.0	2.2
Labourers	9.5	7.1	2.4	5.6	4.6	1.0	14.0	11.4	2.6

1. Excluding maternity leave. However, men on paid paternity (in Quebec only) or parental leave are currently included in the calculation, but in the near future men on such leave will be excluded, as are women on maternity leave.

2. Absent workers divided by total.

3. Hours absent divided by hours usually worked.

4. Inactivity rate multiplied by working days in year (250).

Source: Statistics Canada, Labour Force Survey.

Table 5 Absence rates for full-time employees by workplace size, job tenure, job status and union coverage, 2009¹

	Incidence ²			Inactivity rate ³			Days lost per worker in year ⁴		
	Total	Own illness or disability	Personal or family responsibilities	Total	Own illness or disability	Personal or family responsibilities	Total	Own illness or disability	Personal or family responsibilities
	%			%			days		
Workplace size									
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Under 20 employees	7.0	4.7	2.2	3.2	2.5	0.7	8.1	6.3	1.8
20 to 99 employees	8.1	5.7	2.4	3.8	3.0	0.8	9.5	7.4	2.1
100 to 500 employees	9.0	6.6	2.4	4.5	3.6	0.9	11.2	8.9	2.3
Over 500 employees	9.5	7.1	2.4	4.9	4.0	0.9	12.3	10.1	2.2
Job tenure									
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
1 to 12 months	7.0	4.8	2.2	2.8	2.1	0.8	7.1	5.2	1.9
Over 1 to 5 years	8.1	5.6	2.4	3.8	2.9	0.9	9.4	7.1	2.2
Over 5 to 9 years	8.6	6.0	2.6	4.1	3.2	0.9	10.3	8.0	2.3
Over 9 to 14 years	9.1	6.5	2.5	4.6	3.7	0.9	11.5	9.3	2.2
Over 14 years	8.5	6.4	2.1	4.6	3.9	0.7	11.5	9.7	1.7
Job status									
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Permanent	8.3	6.0	2.3	4.0	3.2	0.8	10.0	8.0	2.1
Non-permanent	6.8	4.5	2.3	3.1	2.2	0.8	7.7	5.6	2.1
Union coverage									
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Union member or covered by collective agreement	10.3	7.8	2.5	5.5	4.5	1.0	13.7	11.3	2.5
Non-unionized	7.1	4.9	2.3	3.2	2.4	0.7	8.0	6.1	1.9

1. Excluding maternity leave. However, men on paid paternity (in Quebec only) or parental leave are currently included in the calculation, but in the near future men on such leave will be excluded, as are women on maternity leave.

2. Absent workers divided by total.

3. Hours absent divided by hours usually worked.

4. Inactivity rate multiplied by working days in year (250).

Source: Statistics Canada, Labour Force Survey.

Table 6 Absence rates for full-time employees by province, region and census metropolitan area (CMA), 2009¹

	Incidence ²			Inactivity rate ³			Days lost per worker in year ⁴		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
Province and region		%			%		days		
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
Atlantic	8.7	6.5	2.3	4.4	3.6	0.8	10.9	9.0	1.9
Newfoundland and Labrador	8.3	6.5	1.7	4.6	4.0	0.7	11.5	9.9	1.6
Prince Edward Island	7.5	5.3	2.1	3.4	2.8	0.7	8.6	6.9	1.6
Nova Scotia	9.2	6.8	2.4	4.5	3.7	0.8	11.4	9.3	2.1
New Brunswick	8.6	6.2	2.4	4.2	3.4	0.8	10.5	8.6	1.9
Quebec	9.0	6.7	2.3	4.7	3.9	0.8	11.8	9.7	2.1
Ontario	7.8	5.4	2.5	3.6	2.7	0.8	8.9	6.9	2.0
Prairies	7.9	5.5	2.4	3.5	2.7	0.8	8.8	6.8	2.0
Manitoba	8.8	6.3	2.5	4.0	3.3	0.7	10.1	8.3	1.8
Saskatchewan	9.1	6.3	2.8	4.3	3.3	1.0	10.7	8.2	2.5
Alberta	7.3	5.1	2.2	3.2	2.4	0.8	7.9	5.9	2.0
British Columbia	7.6	5.6	2.0	4.0	3.1	0.9	10.0	7.8	2.2
CMA									
Both sexes	8.2	5.8	2.3	3.9	3.1	0.8	9.8	7.8	2.1
All CMAs	8.1	5.8	2.3	3.8	3.0	0.8	9.5	7.4	2.1
St. John's	9.1	7.3	1.8	4.8	4.1	0.7	12.0	10.4	1.6
Halifax	9.3	7.0	2.3	4.4	3.6	0.8	11.0	9.0	2.0
Saint John	7.2	4.7	2.5	3.3	2.5	0.9	8.3	6.1	2.2
Saguenay	7.9	5.7	F	4.0	3.3	F	10.0	8.3	F
Québec	8.8	6.7	2.1	4.0	3.3	0.7	10.0	8.4	1.7
Montréal	9.2	6.8	2.4	4.6	3.7	0.9	11.6	9.3	2.3
Trois-Rivières	7.9	6.2	F	4.6	3.9	F	11.4	9.7	F
Sherbrooke	8.6	6.1	F	4.3	3.5	F	10.6	8.8	F
Gatineau	12.3	8.3	4.0	6.1	4.6	1.5	15.1	11.5	3.7
Ottawa	9.2	6.2	3.0	3.7	2.7	1.0	9.3	6.8	2.5
Kingston	9.7	7.0	F	4.9	4.0	F	12.3	10.1	F
Greater Sudbury/									
Grand Sudbury	9.7	7.1	F	4.9	4.0	F	12.4	10.0	F
Toronto	7.3	5.0	2.3	3.3	2.5	0.8	8.1	6.2	2.0
Hamilton	7.0	4.9	2.2	3.4	2.6	0.8	8.6	6.5	2.1
St. Catharines-Niagara	8.2	6.1	2.2	4.0	3.4	0.7	10.1	8.4	1.6
London	8.3	5.6	2.7	3.8	2.9	0.9	9.5	7.4	2.2
Windsor	8.1	5.4	2.7	4.1	3.0	1.0	10.1	7.5	2.6
Kitchener-Waterloo	8.0	5.5	2.5	3.3	2.5	0.8	8.2	6.2	2.0
Oshawa	8.2	5.9	2.3	3.7	3.0	0.7	9.3	7.5	1.8
Thunder Bay	8.9	6.1	F	4.0	2.9	F	9.9	7.3	F
Winnipeg	8.8	6.4	2.4	3.9	3.2	0.7	9.7	8.1	1.7
Regina	9.8	6.9	2.9	4.4	3.4	1.1	11.1	8.4	2.7
Saskatoon	9.3	6.6	2.7	4.2	3.3	1.0	10.5	8.1	2.4
Calgary	7.3	5.1	2.3	3.1	2.3	0.8	7.7	5.7	1.9
Edmonton	7.3	5.2	2.1	3.2	2.5	0.7	8.1	6.3	1.8
Abbotsford	7.9	5.6	F	4.0	3.2	F	10.1	8.0	F
Vancouver	7.3	5.3	2.0	3.8	2.9	0.9	9.4	7.2	2.1
Victoria	8.8	6.6	2.2	4.2	3.3	0.9	10.6	8.2	2.3
Non-CMAs	8.0	5.7	2.3	4.2	3.4	0.8	10.4	8.4	2.0
Urban Centres	8.6	6.2	2.4	4.3	3.5	0.8	10.8	8.8	2.0

1. Excluding maternity leave. However, men on paid paternity (in Quebec only) or parental leave are currently included in the calculation, but in the near future men on such leave will be excluded, as are women on maternity leave.

2. Absent workers divided by total.

3. Hours absent divided by hours usually worked.

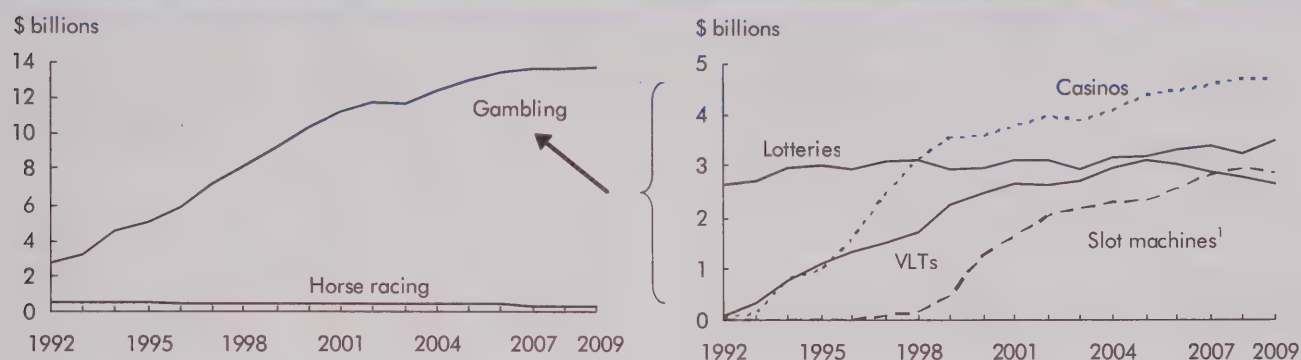
4. Inactivity rate multiplied by working days in year (250).

Source: Statistics Canada, Labour Force Survey.

Gambling, 2010

- Net revenue from government-run lotteries, video lottery terminals (VLTs), casinos and slot machines not in casinos rose steadily from \$2.73 billion in 1992, before levelling off and remaining at around \$13.7 billion since 2007 (\$13.75 billion in 2009).¹
- Net revenue from pari-mutuel betting (horse racing) dropped from \$532 million to \$355 million over the same period (1992 to 2009).
- Net revenue from casinos continued to represent one-third of the gambling industry (34%) in 2009, while revenue and representation were up for lotteries (26%) and down slightly for both slot machines outside casinos (mainly at racetracks) (21%) and VLTs (19%).
- Average gambling revenue per person 18 and over in 2008 ranged from \$115 in the three territories to \$830 in Saskatchewan, with a national average of \$520.²
- Compared with workers in non-gambling industries, those in gambling were more likely to have a high school education or less (53% versus 40%), be paid by the hour (85% versus 65%), be paid less (\$20.25 hourly versus \$23.55), and receive tips at their jobs (31% versus 7%).
- Men increased their share of employment in the gambling industry from 35% in 1992 to 51% in 2009. Similarly the rate of full-time jobs increased from 60% to 82% between the two years.³
- Around 6 in 10 women and men living alone reported spending money on at least one gambling activity; however, on average the men spent more than women—\$560 compared with \$455.
- Gambling participation and average expenditures increased with household income. For example, 51% of households with incomes of less than \$20,000 gambled in 2008 and spent an average of \$395, while equivalent figures for those with incomes of \$80,000 or more were 78% and \$555.

For further information on any of these data, contact Katherine Marshall, Labour Statistics Division. She can be reached at 613-951-6890 or at katherine.marshall@statcan.gc.ca.

Chart A Net revenue from government-run gambling has levelled off recently

1. Refers to those found outside government-run casinos.
Source: Statistics Canada, National Accounts.

Table 1 Gambling revenues and profits

	Gambling revenue ¹		Gambling profit ²		Share of total revenue ³		Revenue per capita (18 and over) ⁴	
	1992	2008	1992	2008	1992	2007	1992	2008
	\$ millions (current)				%		\$	
Canada	2,734	13,665	1,680	6,747	1.9	4.7	130	520
Newfoundland and Labrador	80	198	42	103	2.3	2.9	190	480
Prince Edward Island	20	43	7	16	2.7	3.2	210	385
Nova Scotia	125	317	72	144	2.8	3.9	180	420
New Brunswick	117	219	49	137	2.7	3.1	210	365
Quebec	693	2,744	472	1,419	1.8	3.6	130	440
Ontario	853	4,733	529	1,716	1.9	4.8	105	465
Manitoba	153	639	105	305	2.5	5.3	185	690
Saskatchewan	62	643	39	343	1.1	5.8	85	830
Alberta	225	2,205	125	1,479	1.6	6.2	120	790
British Columbia	403	1,915	239	1,078	2.2	5.6	155	540
Yukon, Northwest Territories and Nunavut	5	9	1	7	0.3	0.3	80	115

1. Total revenue from wagers on all government-controlled gambling, such as lotteries, casinos and VLTs, minus prizes and winnings. Revisions to provincial estimates will occur in November 2010.

2. Net income of provincial governments from total gambling revenue, less operating and other expenses (see Data sources and definitions).

3. The 2007 share of total revenue calculation is based on 2007 gambling revenue and 2007 total provincial revenue. The 2008 provincial revenue will be available in November 2010.

4. Persons 18 and over were selected as this is the legal age of gambling in most provinces.

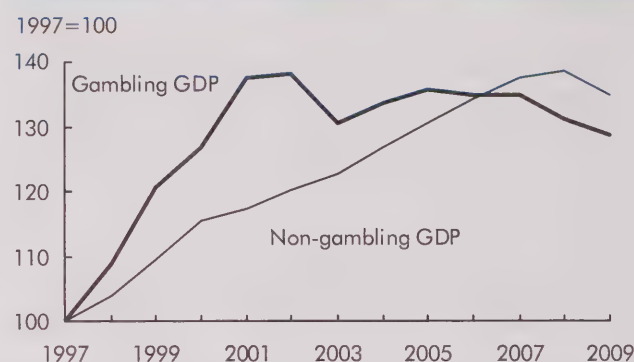
Sources: Statistics Canada, National Accounts, Public Institutions (Financial management statistics) and post-censal population estimates.

Table 2 Characteristics of workers

	Gambling ¹		Non-gambling	
	1992	2009	1992	2009
Total employed	11	43	12,720	16,806
	thousand			
	%			
Sex				
Men	35	51	55	52
Women	65	49	45	48
Age				
15 to 34	57	39	45	36
35 and over	43	61	55	64
Education				
High school or less	66	53	57	40
Postsecondary certificate or diploma	21	31	27	35
University degree	13	15	16	25
Work status				
Full-time	60	82	81	81
Part-time	40	18	19	19
Provinces				
Atlantic provinces	8	3	7	7
Quebec	F	16	24	23
Ontario	28	37	39	39
Prairies	30	26	17	18
British Columbia	25	17	13	13
Class of worker				
Employee	99	97	85	84
Self-employed	F	F	15	16

1. Employment at racetracks and 'racinos' (racetracks with slots and/or other gaming activities) is excluded. These activities are coded under 'spectator sports.'

Source: Statistics Canada, Labour Force Survey.

Chart B Gambling GDP turned down before the rest of the economy

Note: The price, at basic prices, of the goods and services produced. The GDP figures for the gambling industry refer strictly to wagering activities, such as lottery ticket sales, VLT receipt sales, and bets at casinos. Other economic spinoffs, such as hotel and restaurant business, security services and building and equipment maintenance are not included.

Source: Statistics Canada, National Accounts.

Table 3 Characteristics of jobs

	Gambling		Non-gambling	
	1997	2009	1997	2009
	thousand			
Employees¹	33	41	11,323	14,106
	%			
Unionized ²	29	30	34	31
Non-unionized	71	70	66	69
Permanent job	91	93	89	87
Temporary job	9	7	11	13
Usually receive tips	27	31	7	7
No tips	73	69	93	93
Paid by the hour	80	85	61	65
Not paid by the hour	20	15	39	35
Average hourly earnings,³ full-time	\$			
Both sexes	13.30	20.25	16.55	23.55
Men	13.75	21.70	17.85	25.05
Women	12.90	18.60	14.75	21.70

1. More detailed questions on employees were introduced with the 1997 revision of the Labour Force Survey.

2. Includes persons who are not union members, but whose jobs are covered by collective agreements.

3. Includes tips and commissions.

Source: Statistics Canada, Labour Force Survey.

Table 4 Household expenditures on gambling activities

	At least one gambling activity		Government lotteries		Other lotteries/raffles, etc.		Casinos, slot machines and VLTs		Bingos	
	\$	%	\$	%	\$	%	\$	%	\$	%
All households										
2000	490	74	240	63	80	31	525	21	730	9
2001	515	72	250	61	95	29	535	20	795	9
2002	570	73	250	63	125	30	680	21	900	7
2003	505	74	235	64	95	28	650	19	800	8
2004	515	71	260	61	100	28	655	19	800	6
2005	550	69	250	60	140	26	710	17	945	6
2006	495	73	255	64	110	28	685	19	520	6
2007 ¹	645	52	280	48	125	17	850	17	790	4
2008	480	70	250	62	110	25	695	18	655	5
One-person households²	505	61	230	52	95	17	945	15	640	5
Men	560	64	290	55	130	18	925	17	835	2
18 to 44	270	59	135	49	115	19	355	20	F	F
45 to 64	680	71	365	64	115	21	1,220	16	F	F
65 and over	945	63	445	55	235	13	2,180	14	F	F
Women	455	58	170	49	60	16	970	13	600	7
18 to 44	525	55	135	45	45	17	1,005	20	F	F
45 to 64	390	66	165	59	75	20	670	12	1,385	5
65 and over	470	55	195	43	60	14	1,140	11	435	9
All households										
Newfoundland and Labrador	455	75	270	63	85	36	635	8	665	14
Prince Edward Island	400	73	250	61	95	42	450	11	440	11
Nova Scotia	410	76	215	63	100	45	440	16	815	7
New Brunswick	450	72	300	61	85	39	350	8	800	10
Quebec	390	71	245	67	65	16	780	11	380	5
Ontario	490	71	260	62	115	24	590	21	715	4
Manitoba	580	72	245	59	120	36	650	24	885	9
Saskatchewan	720	76	220	62	125	48	1,050	27	825	7
Alberta	645	64	275	55	165	32	915	19	1,140	3
British Columbia	460	65	220	58	90	25	745	19	425	3
Income after tax										
Less than \$20,000	395	51	150	42	50	11	1,090	10	465	6
\$20,000 to \$39,999	500	66	270	57	75	15	730	16	745	7
\$40,000 to \$59,999	475	73	260	66	105	28	555	20	785	5
\$60,000 to \$79,999	390	77	255	71	110	29	370	20	490	4
\$80,000 and over	555	78	260	69	130	40	870	21	605	2

1. New screening questions were added in 2007 to reduce the response burden, but for some categories, including games of chance, the response rate was lower than expected. These screening questions were modified for 2008. See catalogue no. 62F0026M, no. 1 for more details.

2. Using one-person households allows examination of individual characteristics. Persons 18 and over were selected as this is the legal age for gambling in most provinces.

Note: Expenditures are per spending household. Unless otherwise indicated, figures are for 2008.

Source: Statistics Canada, Survey of Household Spending.

Data sources and definitions

Labour Force Survey: a monthly household survey that collects information on labour market activity, including detailed occupational and industrial classifications, from all persons 15 years and over.

National Accounts: The quarterly Income and Expenditure Accounts (IEA) is one of several programs constituting the System of National Accounts. The IEA produces detailed annual and quarterly income and expenditure accounts for all sectors of the Canadian economy, namely households, businesses, governments and non-residents.

Survey of Household Spending (SHS): an annual survey that began in 1997 and replaced the Family Expenditure Survey and the Household Facilities and Equipment Survey. The SHS collects data on expenditures, income, household facilities and equipment, and other characteristics of families and individuals living in private households.

Gambling industries: This industry group covers establishments primarily engaged in operating gambling facilities, such as casinos, bingo halls and video gaming terminals, or providing gambling services, such as lotteries and off-track betting. It excludes horse race tracks and hotels, bars and restaurants that have casinos or gambling machines on the premises.

Gambling profit: net income from all provincial and territorial government-controlled gambling, such as lotteries,

casinos and VLTs after prizes and winnings, operating expenses (including wages and salaries), payments to the federal government, other overhead costs, and other expenses are deducted. Other expenses includes categories such as 'special payments' or 'win contributions,' which vary by province and can influence profit rates.

Gambling revenue: all money wagered on provincial and territorial government-run lotteries, casinos and VLTs, less prizes and winnings. Gambling revenue generated by and for charities and on Indian reserves is excluded.

Government casino: a government-regulated commercial casino. Permits, licences and regulations for casinos, both charity and government, vary by province. Government casinos, now permitted in several provinces, also vary by the degree of public and private involvement in their operations and management. Some government casinos are run entirely as Crown corporations, while others contract some operations—for example, maintenance, management or services—to the private sector.

Video lottery terminal (VLT): a coin-operated, free-standing, electronic game of chance. Winnings are paid out through receipts that are turned in for cash, as opposed to cash payments from slot machines. Such terminals are regulated by provincial lottery corporations.

Table 5 Household expenditures on all gambling activities by income group, 2008

	Average expenditure		Percentage reporting	Gaming as % of total income	
	All households	Reporting households		All households	Reporting households
Income after tax	335	\$ 480	70	0.5	0.6
Less than \$20,000	200	395	51	1.5	2.8
\$20,000 to \$39,999	330	500	66	1.1	1.7
\$40,000 to \$59,999	345	475	73	0.7	1.0
\$60,000 to \$79,999	305	390	77	0.4	0.6
\$80,000 and over	430	555	78	0.4	0.5

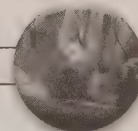
Source: Statistics Canada, Survey of Household Spending.

Notes

1. Refers to total money wagered on all non-charity government-controlled gambling, such as lotteries, casinos and VLTs, minus prizes and winnings.
2. Survey of Household Spending (SHS) and National Accounts rankings of provincial expenditures differ, in part because the SHS includes both charity and non-charity gambling activity.
3. Employment at racetracks and 'racinos' (racetracks with slots and/or other gaming activities) is excluded. These activities are coded under 'spectator sports.'

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- Recognition of newcomers' foreign credentials and work experience
- Offshorability and wages in the service sector
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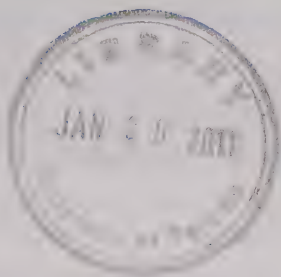
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■ Articles

5 Employment patterns of postsecondary students

Katherine Marshall

This article examines long-term trends in employment for postsecondary students. The rate of employment, hours of work and employment earnings of male and female students are covered. How other student characteristics relate to employment is also addressed. Particular attention is paid to student employment during labour market downturns.

19 Recognition of newcomers' foreign credentials and work experience

René Houle and Labouaria Yssaad

Using the Longitudinal Survey of Immigrants to Canada, this study sheds light on a specific aspect of newcomers' settlement-recognition of their foreign credentials and work experience in relation to their individual characteristics. These characteristics range from class of immigrant (skilled-worker principal applicants, family class, refugees, etc.), education and field of study to country where the highest credential was earned, and knowledge of English or French. The study also examines foreign credential and work experience recognition at three time points over a four-year period-six months, two years and four years after landing.

35 Offshorability and wages in the service sector

Yuqian Lu and René Morissette

This study uses data from the Labour Force Survey to examine whether offshorable service-sector occupations and other comparable occupations have displayed similar wage growth since the late 1990s. The analysis allows results to vary across service-sector occupations and worker characteristics.

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48 Temporary employment in the downturn

Diane Galarneau

This article tracks trends in temporary employment since the Labour Force Survey (LFS) began measuring it—from 1997 to 2009—with particular attention to the recent economic downturn. It also examines the earnings gap between temporary and permanent positions and looks at whether that gap changed during the recent employment slowdown.

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Highlights

In this issue

■ **Employment patterns of postsecondary students** ... p. 5

- Since the late 1990s, almost 50% of full-time CEGEP, community college and university students age 15 to 24 were employed during the school year, up from 25% in the late 1970s.
- The employment rate for students and average hours of work declined during the recent economic downturn, although the employment rate recovered somewhat during the winter 2010 school term.
- In 2009/2010, female students were more likely than male students to combine school and work (50% versus 40%), but they worked fewer average hours per week (15.3 versus 16.7).
- The summer employment rate for postsecondary students age 20 to 24 fell from 70% to 63% between 2008 and 2009, while unemployment increased and hours decreased, with some recovery in 2010.
- Employed students earned roughly \$6,300 during the 2009/2010 school year and \$6,700 during the summer of 2009.

■ **Recognition of newcomers' foreign credentials and work experience** ... p. 19

- Among immigrants who had foreign academic credentials, just over one-quarter (28%) had received recognition for these credentials within 4 years after landing. Foreign work experience was more likely to be recognized as 39% of immigrants with foreign experience had it recognized within 4 years.
- Newcomers were most likely to have their work experience recognized within their first 6 months of settlement. The rate of foreign experience

recognition dropped in each subsequent period: from 6 to 24 months after landing and from 24 months to 4 years after landing. The likelihood of credentials recognition was similar 6 months and 2 years after landing before falling by one-half after four years of settlement.

- Recognition rates for newcomers who landed as skilled-worker principal applicants (selected for their labour market attributes) were higher than for any other immigrant group. These newcomers were also most likely to have their credentials and work experience recognized (39% and 56% respectively) after controlling for the effect of other individual characteristics.
- Four years after landing, newcomers with university degrees had a 43% likelihood of having their work experience recognized and a 29% likelihood of having their education credentials recognized.
- Newcomers who had completed their highest level of education or worked in the United States or the United Kingdom prior to landing were most likely to have their credentials and work experience recognized after controlling for the effect of other characteristics.
- Having a pre-arranged job at landing was the strongest correlate of work experience recognition: the predicted percentage of newcomers with pre-arranged employment who had their work experience recognized was 87%, compared to 42% for those without such an arrangement and 56% for those who were selected as skilled-worker principal applicants.
- The predicted percentage of newcomers with a pre-arranged job who had their credentials recognized was also significantly higher (40%) than for those who did not have pre-arranged employment (29%).

■ Offshorability and wages in the service sector ... p. 35

- Of all jobs held in the private service sector, about one in four is potentially subject to service offshoring.
- Service-sector jobs most susceptible to service offshoring are held by workers employed in business, finance and administrative occupations (e.g., secretaries, clerks and telephone operators) or in natural and applied sciences (e.g., computer programmers, engineers and architects). More than one-half of these workers are in offshorable positions.
- Because they generally require face-to-face contact or involve a service that cannot be transmitted by information and communication technologies, jobs in sales and service occupations and those in retail trade, accommodation and food services are the least susceptible to service offshoring. Overall, at most 6% of these jobs are offshorable.
- Overall, wages in offshorable service-sector jobs and in other service-sector jobs have grown at a similar pace since the late 1990s. Between 1998 and 2009, real wages in offshorable occupations and other service-producing occupations grew roughly 15%.
- In some occupational groups, wages grew at a different pace. Among workers with similar characteristics, wages in offshorable clerical occupations grew 2 percentage points less than those in non-offshorable business, finance and administrative occupations between the periods from 1998 to 2000 and from 2006 to 2009. Meanwhile, wages in offshorable jobs in natural and applied sciences increased 5 percentage points faster than among other natural and applied sciences occupations.

■ Temporary employment in the downturn ... p. 48

- After strong growth from 1997 to 2005, the increase in temporary employment began slowing in 2006. This type of employment registered a decrease before the downturn in total employment.

In 2009, temporary work accounted for 12.5% of paid employment, down slightly from its peak of 13.2% in 2005.

- Contract positions accounted for just over one-half (52%) of temporary jobs, representing nearly one million workers. Since 1997, this type of position has been the main source of the growth in temporary work. Contract work increased by more than 3% between 2005 and 2009 despite the overall employment decline in 2008.
- Seasonal employment accounted for 1 in 5 temporary jobs. From 2005 to 2009, it declined more than 3%, mainly due to a downturn in its traditional industries like fishing and forestry, the general decline in manufacturing, and an employment drop in accommodation and food services.
- Employees with casual jobs were mainly in retail and wholesale trade, educational services, health care, and accommodation and food services. This type of employment declined more than 10% between 2005 and 2009, with losses across most sectors.
- The gap in hourly earnings between temporary and permanent positions ranged from 14% for contract jobs to nearly 34% for seasonal and casual jobs. Irrespective of whether temporary employment was at a peak, the earnings gap held steady.

■ What's new? ... p. 61

■ From Statistics Canada

Dropout rates and labour market outcomes of young dropouts
 Productivity of unincorporated enterprises
 Labour productivity
 Income of families and individuals
 Pension coverage and earnings replacement among Canadian couples
 A note on pension coverage and earnings replacement rates of retired men
 Employment in resource sector manufacturing

■ From other organizations

Temporary employment and labour adjustment
 Long-term unemployment in tough labour markets
 The expanding role of temporary help services

Employment patterns of postsecondary students

Katherine Marshall

Most postsecondary students depend on earnings from a job to cover some of the cost of their education. However, whether young workers are at school or not, youth employment can be particularly affected by economic downturns. Between October 2008 and October 2009, employment declined by about 10% among those age 15 to 24, representing 225,000 jobs and more than one-half of the total job loss during this time (LaRoche-Côté and Gilmore 2009). With lower levels of seniority, job permanency and job protection, young workers are often the first to be laid-off. Finding a job is also more difficult as many have little or no previous work experience, even if credentials are strong.

While postsecondary students report that personal savings is the most common source of income to fund their education (79%), income from employment is ranked second (63%) (Ouellette 2006). More than one-half of students report that either savings (27%) or earnings (26%) provide the largest amount of money towards the total cost of their school year. As youth unemployment rises during economic downturns, these important sources of student income decline, which can lead to increased borrowing. "Based on previous recessions, an increase of each 1% in the rate of youth unemployment appears to lead to an increase of just over 6% in the number of student loan borrowers" (Usher and Dunn 2009). Higher student borrowing rates and debt have been linked to lower savings, investments and asset levels well after graduation (Luong 2010).

Tuition fees have risen at a faster rate than inflation since the early 1990s (Ouellette 2006). Some researchers expect the economic downturn to present a number of challenges for postsecondary institutions:

decreasing revenues; increasing costs; increasing enrolment in colleges and postgraduate studies; and increasing student aid costs (Usher and Dunn 2009). According to this scenario, students would be facing increased costs and competition for certain programs as their employment prospects fade.

Recently, more high school and postsecondary students have been working during the school year and spending more time at their jobs than in the past (Usalcas and Bowlby 2006). These findings highlight the question of whether in-school employment is a positive, negative or benign activity. Many studies have attempted to assess the impact working has on academic performance, the amount of time taken to complete studies, student retention and personal stress levels (for recent examples see DeSimone 2008, Motte and Schwartz 2009, Riggert et al. 2006, and Vickers et al. 2003). Most deduce that long hours can interfere with student outcomes, but the findings are less conclusive with regard to low and moderate levels of labour market involvement. Analyzing the school/employment relationship is complicated because of unobservable variables such as personal motivation, time management and organizational skills, and self-confidence.

This study uses the Labour Force Survey (LFS) to examine long-term school-year employment trends among youth age 15 to 24 enrolled full time in community college, CEGEP or university, with particular focus on the recent downturn and nascent recovery (see *Data source and definitions*). This is followed by a descriptive profile of the students who had a job in the 2009/2010 school year, including their average hours of work, average earnings and job characteristics. Information is also provided on long-term employment trends during the summer months (see *A summer job*).

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Data source and definitions

The **Labour Force Survey (LFS)** is a monthly household survey that collects information on labour market activity from all persons 15 years and over. Respondents are also asked whether they are currently attending school, whether it is on a part-time or full-time basis, and which type of school they attend. In order to examine the employment behaviour of students during the academic year, eight months of data from September through April are used.

The LFS adds special student-related questions during the summer months (May through August) in order to identify youth who were full-time students in March of the current year and who plan to return to school full time in the fall. These questions are only asked of respondents age 15 to 24 and the type of school is not collected. Since this study focuses on postsecondary students, information on summer employment trends includes only those age 20 to 24.

The **target population** includes all individuals age 15 to 24 who reported attending community college,

CEGEP, or university during the school year (September through April).

Students **living at home** include all those currently at home as well as those who are away at school temporarily. Students are coded as living in the household if they spend at least 30 days of the year at home. Students who do not return home for at least 30 days are included in the dwelling they occupy during the survey reference week and are labelled living away from home.

Information on **earnings** is collected from all employees for their main job and refers to pay before taxes and other deductions, and includes tips. Almost all employed students work at a paid job (98% in 2009/2010).

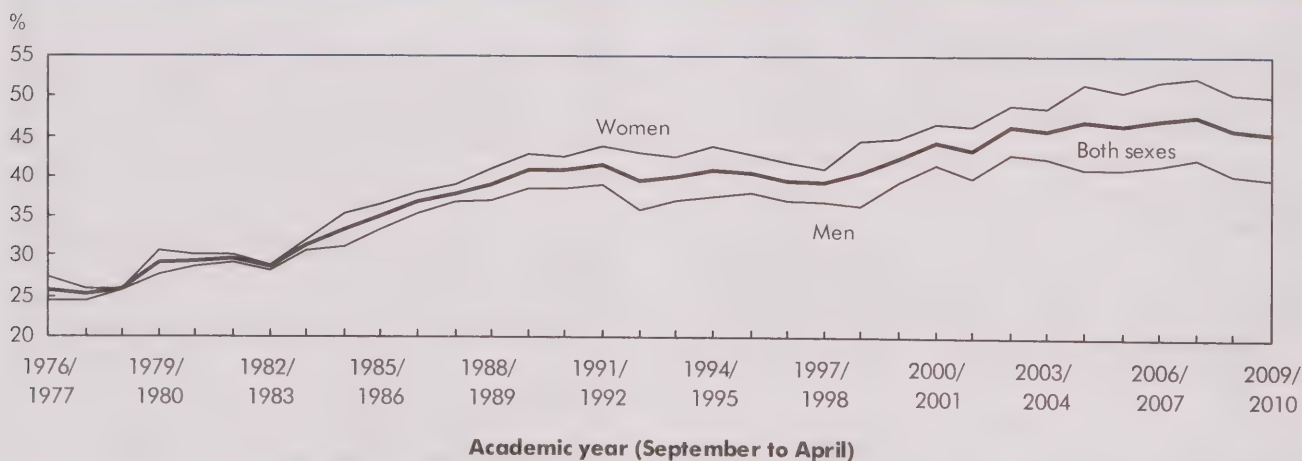
Average usual **hours** worked refers to the normal hours an employee spends at his or her job per week and does not include any overtime. However, prior to 1997, employees were to include overtime hours in their estimates if they were typical to their schedules.

More students and more of them employed

In 1976/1977, 12% of all youth age 15 to 24 (532,000) were attending some form of postsecondary education on a full-time basis—a proportion that has steadily increased over the decades. In the 2009/2010 school

year, 27% (1,193,000) of all youth were full-time postsecondary students attending community college, CEGEP or university. The increased participation in postsecondary education is tied to the rise in the knowledge-based economy and the demand for higher-skilled jobs. Another well-known trend is the increasing participation rate of young women in higher educa-

Chart A Employment rate of full-time postsecondary students peaked in 2007/2008

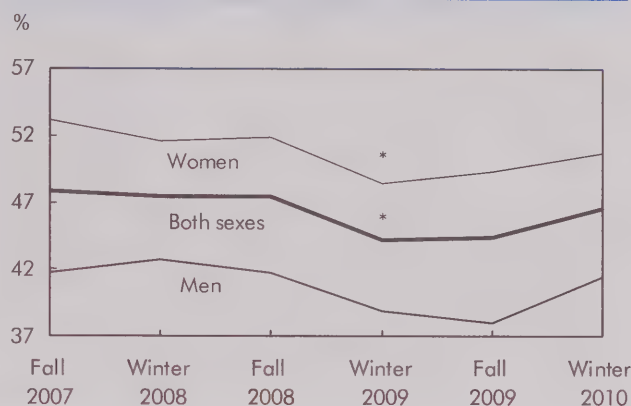


Source: Statistics Canada, Labour Force Survey.

tion vis-à-vis men. In 1976/1977, women represented 46% of all youth attending postsecondary school and, by 2009/2010, they represented 56% of all such students (Table 1). The proportion of full-time postsecondary students attending university has increased slightly, up from 57% in 1976/1977 to 61% in 2009/2010. Women in particular have gravitated towards attending university.

Not only has the postsecondary school attendance rate increased among youth, but so too has the proportion who combine school and paid work. Over the past 35 years, the employment rate among full-time postsecondary students increased from approximately one in four to just under one in two (Chart A). On the other hand, the summer employment rate for this population has remained stable (see *A summer job*). Since the early 1990s, a noticeable difference in employment activity has emerged between men and women, with female students participating at a higher rate than male students. The employment rate difference has continued to widen over the past decade reaching a double-digit difference for the first time in

Chart B Employment rate of full-time postsecondary students up 2 percentage points in the winter 2010 term



* significantly different with previous term at the 0.05 level
Source: Statistics Canada, Labour Force Survey.

Table 1 Full-time postsecondary students aged 15 to 24 by academic year (September to April)

	1976/ 1977	1986/ 1987	1996/ 1997	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
Total	532	713	906	1,116	1,140	1,126	1,193
	'000						
	%						
Both sexes	100	100	100	100	100	100	100
Men	54	50	48	45	46	44	44
Women	46	50	52	55	54	56	56
College or CEGEP	43	46	45	37	38	39	39
University	57	54	55	63	62	61	61
Men - College/CEGEP	23	23	22	17	19	18	17
Men - University	31	27	25	28	27	25	27
Women - College/CEGEP	20	24	23	20	20	21	21
Women - University	26	26	30	35	35	36	35

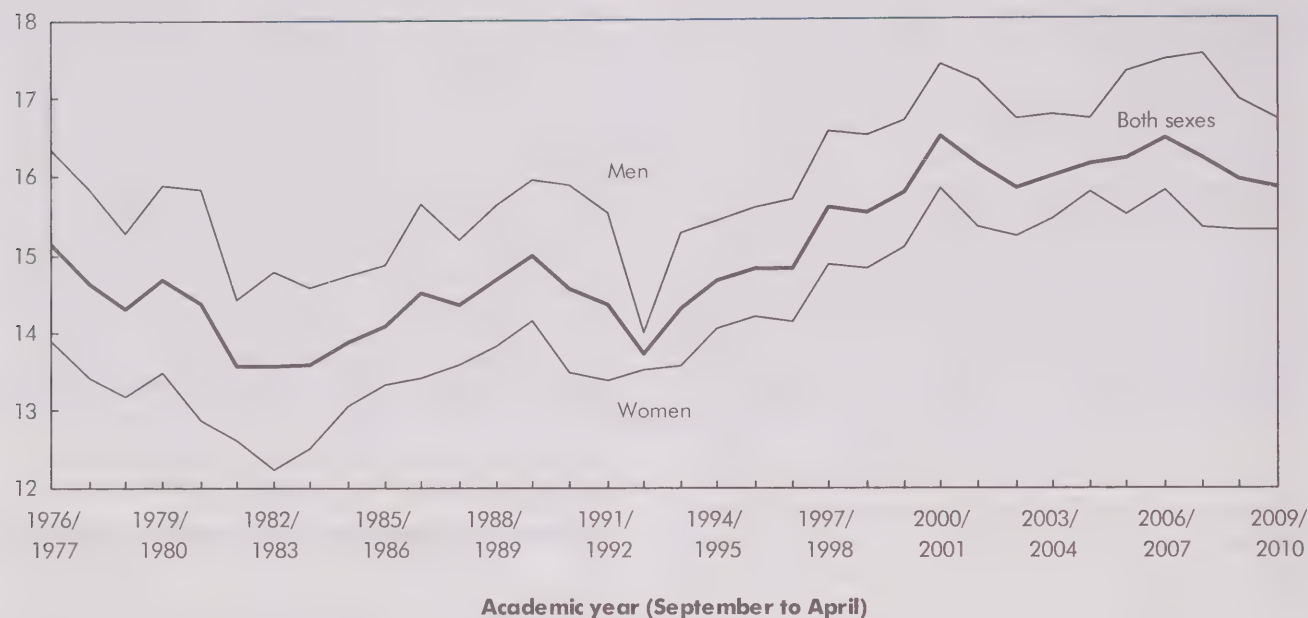
Source: Statistics Canada, Labour Force Survey.

2004/2005, with 52% of full-time female students having a paid job during the school year compared with 41% of full-time male students. The gender employment trend is also evident among younger and older students (Table 6) and has also been noted in previous research using time use data (Marshall 2007).

There was a significant drop in the employment rate for all students between 2007/2008 and 2009/2010—down by 2.6 percentage points for male students and 2.4 points for female students. However, on a term-by-term basis it is obvious that the economic downturn, which started in late 2008, had a large initial impact on the employment opportunities of postsecondary students, but since

Chart C Weekly employment hours of full-time postsecondary students

Average weekly hours



Source: Statistics Canada, Labour Force Survey.

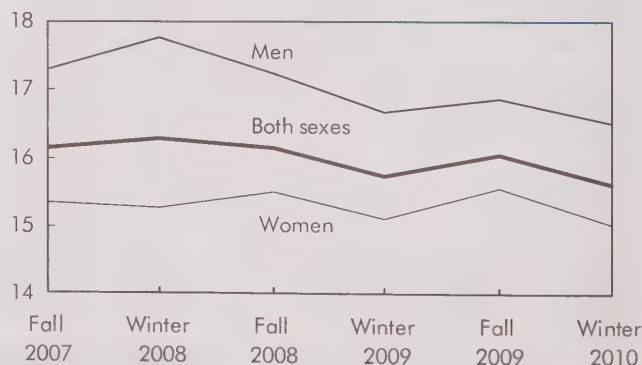
then there have been signs of improvement (Chart B). Although the employment rate among full-time postsecondary students had fallen by 3.3 percentage points between the fall 2008 (September to December) and winter 2009 (January to April) terms, overall there have been gains in each of the following terms, particularly during winter 2010.

Employment hours have increased over time

The average employment hours of postsecondary students with jobs increased steadily until the late 1990s and have since hovered around 16 hours per week (Chart C and Table 7). Although average hours have increased, 9 in 10 students still work part time during the school year. The trend and business cycle fluctuation in student work hours have been similar for both sexes, however, men have consistently worked on average 1.5 to 2.5 more hours per week than women.

Chart D Weekly employment hours of full-time postsecondary students down slightly since recession

Average weekly hours



Source: Statistics Canada, Labour Force Survey.

The average time spent at a job has trended downward since the recent economic downturn, and increased marginally in the fall of 2009 before dropping further in the winter of 2010. The average work hours for all students with jobs for the winter 2010 term was 15.6, the lowest it has been for about a decade (Chart D).

School-year earnings near \$6,000 throughout downturn

With average weekly employment hours dropping slightly, but not significantly, over the recent recession and hourly wages increasing from \$10.75 in 2007/2008 to \$11.80 in 2009/2010, average weekly earnings approached \$200 in 2009/2010 (Table 2). Assuming students keep their part-time jobs for the duration of the school year (from September to April or roughly 34 weeks), average income from earnings for 2009/2010 would have been about \$6,300.

Students who managed to keep or find a job during the economic downturn therefore held their ground in terms of earned income. However, the 2.5% increase in the unemployment rate suggests that, had the rate remained the same as before the downturn, an additional 30,000 students (2.5% of the 2009/2010 student population) would have been employed. Research has shown that declining student employment rates in 1982 and 1990 were followed by large increases in the number of Canada Student Loan Program clients (Usher and Dunn 2009).

The importance of student earnings in financing education was also evident in the 2002 Post-Secondary Education Participation Survey. It found that the median cost of the 2001/2002 school year for postsecondary students age 18 to 24 was \$10,900, and for students with employment earnings, \$3,000 were used from this source (Ouellette 2006).

Table 2 School-year employment, hours and earnings of full-time postsecondary students

	Total	Employment rate	Unemployment rate	Average weekly hours	Average hourly earnings ¹	Average weekly earnings	Earnings during school ²	
							Employed students	All students
	'000	%	%	hours	\$	\$	\$	\$
Total students								
2007/2008	1,140	47.7	6.5	16.2	10.75	175	5,920	2,825
2008/2009	1,126	45.9	8.0	15.9	11.50	185	6,230	2,860
2009/2010	1,193	45.4*	9.0*	15.8	11.80*	185*	6,345*	2,885
Men								
2007/2008	521	42.2	8.0	17.5	11.00	195	6,570	2,770
2008/2009	493	40.3	10.3	17.0	11.80	200	6,800	2,740
2009/2010	526	39.6	11.2*	16.7*	12.15*	205	6,895	2,730
Women								
2007/2008	619	52.4	5.4	15.3	10.55	160	5,490	2,875
2008/2009	633	50.2	6.6	15.3	11.30	175	5,890	2,955
2009/2010	667	50.0	7.5*	15.3	11.55*	175*	6,015*	3,010
Aged 15 to 19								
2007/2008	417	45.8	8.1	15.0	9.10	135	4,640	2,130
2008/2009	423	44.7	10.2	14.3	9.80	140	4,770	2,130
2009/2010	439	43.5	11.9*	14.3*	10.25*	145*	5,000*	2,175
Aged 20 to 24								
2007/2008	722	48.8	5.6	16.8	11.65	195	6,670	3,255
2008/2009	703	46.6	6.7	16.9	12.50	210	7,170	3,345
2009/2010	754	46.6	7.3*	16.6	12.65*	210*	7,145*	3,330

* significantly different from the 2007/2008 school year at the 0.05 level

1. All earnings figures are in 2009 constant dollars.

2. Based on 34 weeks (September through April).

Source: Statistics Canada, Labour Force Survey.

Table 3 Employment and hours worked among full-time postsecondary students

	All students	Employment rate	Of those employed	
			Average weekly hours	More than 20 hours per week
	'000	%	hours	%
School year				
2009/2010	1,193	45	15.8	18
Men (ref.)	526	40	16.7	22
Women	667	50*	15.3*	16*
Aged 15 to 19 (ref.)	439	43	14.3	13
Aged 20 to 24	754	47*	16.6*	21*
Immigrant (ref.)	223	32	16.1	19
Canadian born	970	49*	15.8	18
Immigrant men (ref.)	111	29	17.3	23
Immigrant women	112	35	15.2*	16
Canadian born men	415	43*	16.6	22
Canadian born women	555	53*	15.3*	16*
Lives in CMA (ref.)	972	47	15.7	18
Non-CMA	221	39*	16.5*	20
Usual residence				
Living at home (ref.)	831	46	15.3	16
Not at home	361	44	17.1*	23*
College (ref.)	460	49	16.0	18
University	733	43*	15.7	18

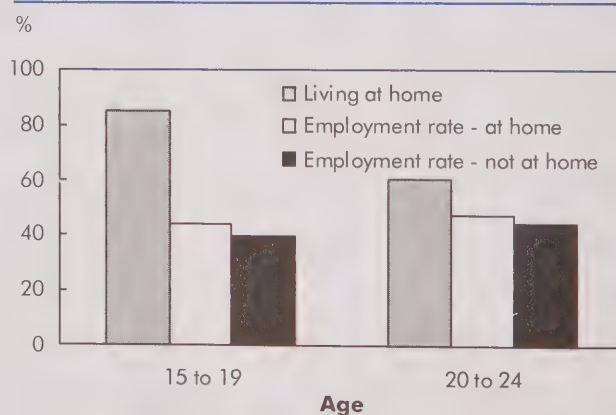
* significantly different from the reference group (ref.) at the 0.05 level
 Source: Statistics Canada, Labour Force Survey, 2009/2010.

Characteristics of employed students

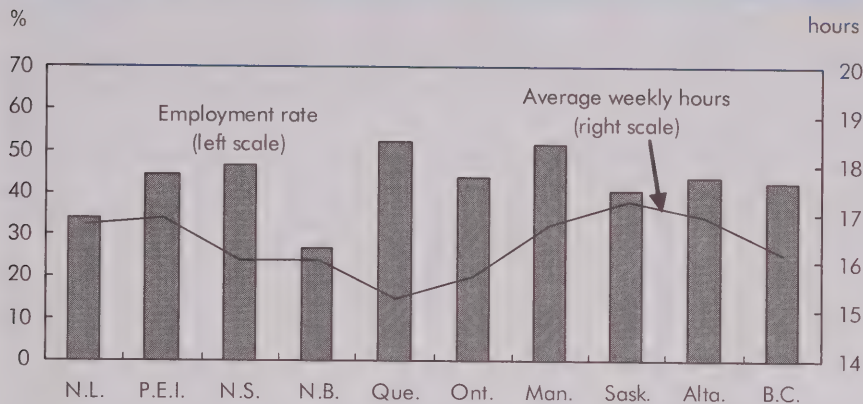
What are the personal and job characteristics of students who work? Findings have already shown that older students and women are more likely to be employed during the school year. Immigrant students are much less likely to work while going to school (32%) compared with their Canadian-born counterparts (49%) (Table 3). Although the gender difference in the employment rate holds within the two groups, for example, immigrant women have a higher employment rate than immigrant men (35% versus 29%), both rates are still less than that of Canadian-born female (53%) and male students (43%). Going to school in a large urban centre, which offers more job opportunities, also increases the chances of being employed (47%) compared to students living in smaller centres (39%). Living at home does not appear to increase student employment rates. Living

Since employed male students worked about two extra hours per week, and earned more per hour than their female counterparts (\$12.15 per hour in 2009/2010 versus \$11.55), their weekly and school-year earnings were higher. Estimated school-year earnings were approximately \$6,900 for men and \$6,000 for women.

Compared with students age 15 to 19, those age 20 to 24 were more likely to work while going to school, work longer hours and have higher wages. The potential school-year earnings by age group range widely from approximately \$5,000 for younger students to over \$7,000 for older students. The financial consequences for unemployed older students are therefore much greater than those for younger students. Furthermore, older students are also less likely to depend on their parents for financial assistance.

Chart E Younger students¹ tend to live at home, but place of residence not strongly linked to employment rate

1. Full-time postsecondary in 2009/2010 school year.
 Source: Statistics Canada, Labour Force Survey, 2009/2010.

Chart F School year¹ employment rate highest in Manitoba and Quebec

1. Full-time postsecondary in 2009/2010 school year.
Source: Statistics Canada, Labour Force Survey, 2009/2010.

at home' refers to students who spend at least 30 days of the year living with at least one parent, therefore students who live in a school residence and return home for the summer fall into this category.¹ Although the proportion of students living at home varies considerably by age, with 85% of those age 15 to 19 doing so, compared with 61% of 20- to 24-year-olds, there is no significant difference in the employment rate by age and place of residence (Chart E). Finally, a higher proportion of college students (49%) than university students (43%) have a job while attending school.

There was less than a two-hour variation in the average weekly hours worked among all student characteristics considered. Although immigrant men had the lowest employment rate, those with a job had the highest average work week—17.3 hours. In terms of longer hours, less than one in five employed students (18%) worked

more than 20 hours per week. Working at least 20 hours per week has been shown to be an important threshold, with some studies indicating that long hours can

interfere with postsecondary performance and student retention.

Finally, provincial employment rates and average hours worked are consistent with historical trends (Usalcas and Bowlby 2006). During the 2009/2010 school year, both Manitoba and Quebec had school-year employment rates above 50% and New Brunswick (27%) and Newfoundland and Labrador (34%) had the lowest average rates (Chart F). Average weekly hours ranged from a high of 17.3 in Saskatchewan to a low of 15.2 in Quebec.

At your service

Of the 542,000 postsecondary students who were employed during the 2009/2010 school year, almost all (96%) had a job in the service sector, compared with 78% of the total non-postsecondary-student employed population (Table 4). Retail trade, in particular, accounted

Table 4 Industrial distribution of employed students¹ and non-students aged 15 and over

	Total employed		Non-students		Students ¹	
	'000	%	'000	%	'000	%
All industries	16,802	100	16,260	100	542	100
Goods	3,660	22	3,640	22	20	4
Services	13,143	78	12,621	78	522	96
Retail trade	2,035	12	1,842	11	194	36
Food and beverage stores	509	3	458	3	51	9
Clothing stores	222	1	178	1	44	8
Other retail	1,304	8	1,206	7	98	18
Education services	1,270	8	1,217	7	53	10
Health care and social assistance	1,982	12	1,947	12	35	6
Arts, entertainment and recreation	376	2	343	2	33	6
Accommodation and food services	1,042	6	935	6	108	20
Restaurants and eateries	851	5	751	5	100	18
Other	191	1	184	1	8	1
Other services	6,436	38	6,336	39	100	18

1. Full-time postsecondary aged 15 to 24.
Source: Statistics Canada, Labour Force Survey, September 2009 to April 2010.

A summer job

Many students start to think about where to apply for a summer job well before the second term of school is finished. The four months are a narrow but good opportunity for many to gain useful work experience, and, more importantly, to earn money to put towards their continuing education. Competition can be stiff as tens of thousands of students descend on the job market all at the same time.

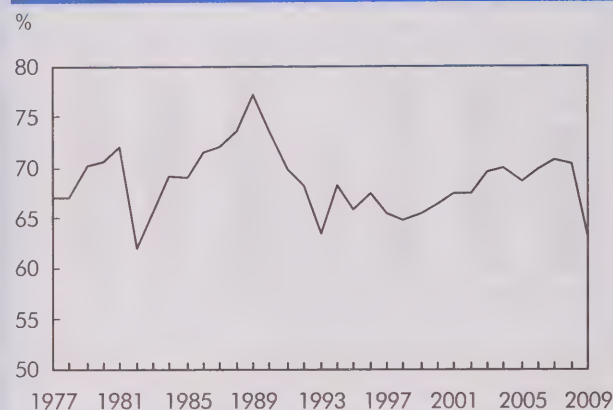
Beginning in 1997, the federal government created the Youth Employment Strategy (YES) to help youth find employment and gain workplace experience. One part of YES includes the Summer Work Experience program, which is aimed specifically at secondary and postsecondary students returning to full-time studies in the fall. The program offers wage subsidies to employers to encourage student hiring and support the operation of summer employment offices (see HRSDC 2010 for more information).

The LFS tracks summer employment trends of students by asking all respondents age 15 to 24 two additional student-related questions during all interviews that take place between May and August (see *Data source and definitions*). The first question asks whether the respondent had been a full-time student in March of that year, and if "yes," whether he or she expects to return to school full time in the fall. The data in this section refer to all those who responded positively to both questions. Furthermore, since the type of school in March is unknown (high school or postsecondary) the sample is limited to those age 20 to 24—ensuring that the majority of respondents are college or university students (the target population of this study).

While the employment rate during the school year has increased steadily over the past several decades for all age groups, the summer employment rate for full-time postsecondary students age 20 to 24 has consistently averaged around 70% (Chart G). Similar to the overall employment rate, the employment rate for students during the summer moves in tandem with the increases and decreases of the business cycle. The decline between the summers of 2008 and 2009, down from 70% to 63%, was the second largest year-to-year drop since 1981 and 1982, when it fell from 72% to 62%.

As seen earlier, students age 20 to 24 who worked during the school year earned, on average, roughly \$7,000 in 2009/2010. Hourly earnings are roughly the same during both the school year and the summer, but the proportion working full time more than quadruples (up from 12% during the 2009/2010 school year to 57% during the summer of 2009²). Therefore, due to increased weekly hours, the same cohort earned roughly the same amount (\$6,700) during the summer of 2009 (Table 5). Although summer earnings do not cover the total expenses of another year of schooling, they can help offset some of the costs. The savings rate is also probably quite high for the students who return home for the summer, avoiding the cost of room and board.

Chart G Student summer employment rate¹ fell by over 7 percentage points during the most recent recession



1. Full-time postsecondary students aged 20 to 24 returning in the fall.
Source: Statistics Canada, Labour Force Survey.

Despite the drop in average weekly hours between the summers of 2008 and 2009 (from 30.0 to 28.8), total summer earnings were similar in both years because of the slight increase in hourly wages (from \$12.40 to \$12.85). Although those with a job fared about the same in both years, it is important to keep in mind that there were roughly 40,000 fewer students employed during the summer of 2009.

The summer employment rate for students fell between 2008 and 2009 in most provinces, but in both years the Atlantic provinces had higher-than-average levels (except for Newfoundland and Labrador), as did Saskatchewan and Manitoba. Employed students in these provinces had higher-than-average weekly hours as well, and with the western provinces boasting the highest hourly earnings, students in Alberta and Saskatchewan were able to earn roughly \$9,000 in the summer of 2009.

Note: While this article was in production, the final 2010 data for summer student employment (May through August) were released. Key findings show the employment and unemployment rates for postsecondary students age 20 to 24 to be 66.4% and 8.3%, respectively. Average weekly hours worked were 27.7 and average hourly earnings were \$12.80. Finally, the full-time employment rate for students during the summer of 2010 was 51.8%.

A summer job (concluded)**Table 5 Summer employment among returning full-time postsecondary students aged 20 to 24, by province**

	Total	Employment rate	Unemployment rate	Average weekly hours	Average hourly earnings ¹	Average weekly earnings	Earnings during summer ²	
							Employed students	All students
	'000	%	%	hours	\$	\$	\$	\$
Canada								
2008	647	70.3	9.0	30.0	12.40	370	6,690	4,705
2009	658	63.0	13.6	28.8	12.85	370	6,670	4,205
Newfoundland and Labrador								
2008	10	59.6	12.8	32.9	11.45	375	6,770	4,035
2009	9	58.3	12.4	31.2	11.55	360	6,475	3,775
Prince Edward Island								
2008	2	85.0	2.8	34.8	10.80	375	6,755	5,745
2009	2	72.1	14.7	33.8	10.85	365	6,590	4,750
Nova Scotia								
2008	17	80.9	4.4	32.7	10.25	335	6,020	4,865
2009	14	69.9	13.4	32.3	11.25	365	6,545	4,575
New Brunswick								
2008	12	78.1	6.6	32.9	10.95	360	6,485	5,060
2009	12	74.8	13.7	34.2	11.60	395	7,125	5,330
Quebec								
2008	159	71.0	8.4	28.9	12.30	355	6,380	4,535
2009	149	65.9	12.1	28.1	12.50	350	6,325	4,165
Ontario								
2008	285	68.4	11.5	29.4	11.50	340	6,080	4,160
2009	303	59.1	17.5	27.6	12.40	345	6,170	3,645
Manitoba								
2008	19	83.9	3.5	31.8	12.55	400	7,190	6,035
2009	16	75.8	8.5	30.8	12.10	375	6,710	5,090
Saskatchewan								
2008	14	79.4	3.6	34.5	13.20	455	8,195	6,500
2009	13	73.7	4.2	33.3	14.90	495	8,935	6,585
Alberta								
2008	52	81.2	4.0	32.7	16.05	525	9,470	7,690
2009	59	65.7	8.1	32.2	15.45	495	8,945	5,875
British Columbia								
2008	79	60.9	8.3	29.1	13.90	405	7,280	4,435
2009	81	63.4	8.7	28.8	13.70	395	7,095	4,495

1. All earnings figures are in 2009 constant dollars.

2. Based on 18 weeks (May through August).

Source: Statistics Canada, Labour Force Survey.

for over one-third of all student employment: 32% for male students and 38% for female students (data not shown). Food and beverage (e.g., grocery stores) and clothing stores account for one-half of the retail trade jobs. The remaining retail employment includes such categories as general merchandise stores, health and personal care stores (e.g., pharmacies and drug stores) and sporting goods, hobby, book and music stores. Retail employment is conducive for students since it often offers part-time hours, evening or weekend shifts, and minimal required experience. From September 2009 to April 2010 there were 2.0 million jobs in retail overall. With some 200,000 students working in this field, their employment represents 10% of all jobs in the retail trade industry.

Restaurants and other eateries also offer many student job opportunities, with 18% working in this industry, compared to 5% of other workers. Students also had a higher-than-average representation in the education services and arts, entertainment and recreation industries, where many work as research assistants and instructors in recreation and sport, respectively.

Conclusion

Although most students have consistently worked during the summer months, employment patterns during the school year have changed substantially. Since the late 1990s, almost one in two full-time postsecondary students have been employed during the academic school year, up from one in four in the late 1970s. At the same time, hours at work rose and then levelled off, averaging around 16 per week over the past decade.

In the 2009/2010 school year, not only were there proportionally more women age 15 to 24 attending postsecondary school than men (56% versus 44%), but they were also more likely to be employed (50% versus 40%). However, on average, employed male students worked longer weekly hours than their female counterparts—16.7 compared with 15.3. Older students and Canadian-born students were also significantly more likely to work while attending school. Almost all employed students worked in the service sector (96%), with 36% in the retail trade and 18% in food services.

Students have not been immune to the recent economic downturn as they experienced a drop in their employment rate and average hours worked. The full-time postsecondary student employment rate fell by over 3 percentage points between the fall 2008 term and the winter 2009 term. Although the rate increased to 46.5% during the winter 2010 term, the rate is still lower than the fall 2007 term rate of 47.9%.

Many students rely on employment earnings to help fund their education (Ouellette 2006). The estimated school-year earnings of those with a job were about \$6,000 before and during the economic downturn (2007/2008 to 2009/2010). Even though students with a job managed to hold their ground in terms of earnings, there were an estimated 30,000 fewer students with jobs over the period.

The summer of 2009 was the worst labour market for postsecondary students age 20 to 24 since the recession years of 1982 and 1993. Between the summers of 2008 and 2009, the employment rate dropped from 70.3% to 63.0%, the unemployment rate increased from 9.0% to 13.6%, and the percentage with a full-time job dropped from 60.7% to 56.6%. It is particularly difficult for students to be jobless during the summer due to the potential earnings loss. Students who were employed during the summer of 2009 earned \$6,700 on average.

The recent declines in the school-year and summer student employment rates due to the economic downturn, and subsequent increase in the unemployment rate, suggests more students would have been working at a paid job if they could have found one. However, most college and university programs last for several years, and with signs that student employment is starting to recover, students wanting work may soon have a better chance of being employed again.

Perspectives

Table 6 Employment rate of full-time postsecondary students aged 15 to 24

	Aged 15 to 24			Aged 15 to 19			Aged 20 to 24		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
Academic year	%								
1976/1977	26	24	27	25	25	25	26	24	30
1977/1978	25	24	26	24	26	23	26	23	29
1978/1979	26	26	26	25	25	25	27	26	27
1979/1980	29	28	31	29	27	29	30	28	32
1980/1981	29	29	30	30	30	30	29	28	31
1981/1982	30	29	30	29	29	29	30	29	31
1982/1983	29	28	29	27	28	27	30	29	31
1983/1984	31	31	32	31	31	30	32	30	34
1984/1985	33	31	35	31	30	33	34	32	38
1985/1986	35	33	37	34	32	36	36	34	37
1986/1987	37	35	38	36	36	36	37	35	39
1987/1988	38	37	39	37	38	37	38	36	41
1988/1989	39	37	41	38	36	40	39	37	42
1989/1990	41	39	43	39	38	41	42	39	45
1990/1991	41	39	43	40	39	41	41	38	44
1991/1992	41	39	44	41	39	42	42	39	45
1992/1993	40	36	43	37	36	38	41	35	47
1993/1994	40	37	42	37	33	39	42	39	45
1994/1995	41	38	44	37	33	40	43	40	46
1995/1996	40	38	43	38	36	40	42	39	44
1996/1997	39	37	42	35	34	37	42	39	45
1997/1998	39	37	41	35	35	35	41	38	44
1998/1999	41	36	44	37	32	41	43	38	46
1999/2000	42	39	45	40	36	43	43	41	46
2000/2001	44	41	47	41	39	42	46	43	49
2001/2002	43	40	46	42	39	45	44	40	47
2002/2003	46	43	49	45	43	47	46	42	50
2003/2004	46	42	49	43	40	46	47	43	50
2004/2005	47	41	52	45	39	50	48	42	52
2005/2006	46	41	52	44	40	48	47	41	52
2006/2007	47	42	52	45	40	49	49	42	54
2007/2008	48	42	52	46	40	51	49	44	53
2008/2009	46	40	50	45	38	49	47	41	51
2009/2010	45	40	50	43	37	48	47	41	51

Source: Statistics Canada, Labour Force Survey.

Table 7 Average weekly hours of full-time postsecondary students aged 15 to 24

	Aged 15 to 24			Aged 15 to 19			Aged 20 to 24		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
Academic year	Average weekly hours								
1976/1977	15.2	16.3	13.9	13.9	14.8	13.0	16.3	17.5	14.8
1977/1978	14.6	15.8	13.4	13.6	14.1	13.1	15.5	17.3	13.7
1978/1979	14.3	15.3	13.2	13.3	14.2	12.5	15.2	16.1	14.0
1979/1980	14.7	15.9	13.5	13.2	13.6	12.9	16.0	17.6	14.1
1980/1981	14.4	15.8	12.9	13.3	14.7	12.0	15.5	16.8	13.9
1981/1982	13.6	14.4	12.6	12.5	13.3	11.8	14.5	15.3	13.5
1982/1983	13.6	14.8	12.2	12.1	13.1	11.3	14.7	16.1	13.1
1983/1984	13.6	14.6	12.5	12.6	13.4	12.0	14.4	15.5	13.0
1984/1985	13.9	14.7	13.1	12.4	12.9	11.9	14.9	15.8	13.9
1985/1986	14.1	14.9	13.3	12.9	13.3	12.7	14.9	15.8	13.9
1986/1987	14.5	15.6	13.4	13.5	13.8	13.3	15.2	16.7	13.5
1987/1988	14.4	15.2	13.6	13.6	14.2	13.0	14.9	15.9	14.0
1988/1989	14.7	15.6	13.8	13.3	14.1	12.7	15.7	16.6	14.8
1989/1990	15.0	16.0	14.2	13.7	14.6	13.1	15.9	16.8	15.0
1990/1991	14.6	15.9	13.5	13.6	15.0	12.6	15.2	16.4	14.1
1991/1992	14.4	15.5	13.4	13.0	13.9	12.3	15.3	16.6	14.1
1992/1993	13.7	14.0	13.5	12.8	12.6	12.9	14.3	14.8	13.9
1993/1994	14.3	15.3	13.6	13.2	13.6	12.9	15.0	16.0	14.0
1994/1995	14.7	15.4	14.0	13.5	14.0	13.1	15.3	16.1	14.6
1995/1996	14.8	15.6	14.2	13.3	13.9	12.9	15.7	16.4	15.0
1996/1997	14.8	15.7	14.1	13.6	14.5	12.9	15.4	16.3	14.7
1997/1998	15.6	16.6	14.9	13.4	13.9	13.0	16.6	17.8	15.8
1998/1999	15.5	16.5	14.8	14.3	15.2	13.7	16.1	17.1	15.3
1999/2000	15.8	16.7	15.1	14.4	15.3	13.8	16.5	17.4	15.8
2000/2001	16.5	17.4	15.8	15.1	15.7	14.7	17.2	18.2	16.4
2001/2002	16.1	17.2	15.4	14.5	15.0	14.2	17.0	18.4	16.0
2002/2003	15.8	16.7	15.2	14.7	15.4	14.2	16.5	17.5	15.8
2003/2004	16.0	16.8	15.4	14.5	15.1	14.1	16.8	17.7	16.2
2004/2005	16.1	16.7	15.8	14.8	15.1	14.6	16.9	17.5	16.4
2005/2006	16.2	17.3	15.5	14.6	15.2	14.3	17.0	18.4	16.2
2006/2007	16.5	17.5	15.8	15.1	15.6	14.8	17.2	18.5	16.4
2007/2008	16.2	17.5	15.3	15.0	15.7	14.6	16.8	18.5	15.7
2008/2009	15.9	17.0	15.3	14.3	14.8	14.1	16.9	18.1	16.0
2009/2010	15.8	16.7	15.3	14.3	14.9	14.0	16.6	17.6	16.0

Source: Statistics Canada, Labour Force Survey.

■ Notes

1. Due mainly to methodological differences, the Labour Force Survey tends to estimate a smaller proportion of young adults living at home compared to the census.
2. The full-time employment rate for students during the summer dropped from 63% in 2007 to 61% in 2008, and to 57% in 2009.

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Recognition of newcomers' foreign credentials and work experience

René Houle and Labouaria Yssaad

Education and work experience are among the valuable assets new immigrants bring to Canada. Almost one in five newcomers are skilled-worker principal applicants selected for their labour market attributes. While the majority of immigrants are not directly selected through the points system, many also possess skills that are potentially valuable to Canadian society and its economy (see *Selection of immigrants*).

In 2008, close to 45% of newcomers held a university degree, more than double the proportion 14 years earlier.¹ Among those who were admitted as principal applicants in the skilled workers category, 72% held a university degree, as did 41% of newcomers in the 'spouse and dependents, skilled worker' category, and 33% of family class immigrants. Fourteen years earlier, the corresponding figures were 39%, 21%, and 12% respectively (Citizenship and Immigration Canada 2004 and 2009).

Yet newcomers face barriers that may impede the recognition of their credentials and work experience, with consequences for their labour market performance and broader integration within Canadian society. Potential factors include the content of foreign education being deemed less relevant to the needs of the Canadian labour market than the country where the education was completed, linguistic ability in English or French, and the entry procedures in some trades and professions. Unfamiliarity with foreign degrees among employers may also play a role (Mata 1999). Others have suggested that the decentralized accreditation system seems to be a hurdle, with numerous trade and professional bodies being involved, and provinces having their own standards for evaluating degrees and setting certification norms for trades and professions (McDade 1988).

Selection of immigrants

Skilled-worker principal applicants are selected through a points system based on their labour market attributes. Higher marks are assigned to characteristics deemed to be most likely to increase success in the Canadian economy. The points system has been modified since it came into effect in 1967 (Green and Green 1999), but some basic elements have remained part of the screening grid. Selection criteria for skilled workers comprise education level, language ability in English or French, employment experience, age, arranged employment in Canada prior to landing, and some form of adaptability or suitability (Justice Canada 2001 and 1999, and Tolley 2003). The LSIC includes immigrants age 15 and over who landed from abroad between October 1, 2000, and September 30, 2001. Skilled-worker immigrants in this cohort were admitted according to the *Immigration Regulations, 1978* and their subsequent updates—these immigrants did not land under the current *Immigration and Refugee Protection Act* (IRPA), which came into effect in 2002.

Newcomers experience a higher rate of unemployment than established immigrants and native Canadians. Their earnings lag behind those of other groups. Finding employment is frequently challenging. Education-to-job mismatch is particularly prevalent among recent immigrants with university education. In 2008, two-thirds of such newcomers were working in occupations that usually required at most a college education or apprenticeship, compared to 55% of established immigrants and 40% of native Canadians (Gilmore 2009).² Also, a recent analysis of 2006 Census data shows that just under one-quarter (24%) of employed foreign-educated, university-level immigrants were working in a regulated occupation that matched their field of study, compared to 62% of their Canadian-born counterparts. And among immigrants whose occupation did not match their field of study,

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77% worked in jobs that do not usually require a degree, compared to 57% of 'unmatched' Canadian-born graduates (Zietsma 2010).³

Non-recognition of foreign credentials and work experience by employers and regulatory professional and trade bodies can lead to an underutilization of the 'human capital' of many immigrants who were selected for their skills, work experience and other sociodemographic characteristics (Boyd and Schellenberg 2007, Boyd and Thomas 2001 and 2002, and Wayland 2006⁴).

This study uses the 2000 to 2005 Longitudinal Survey of Immigrants to Canada (LSIC) to shed light on the issue of foreign credentials and work experience recognition from the perspective of immigrants, as the survey data are based on immigrants' responses to interview questions. The period covered by the survey precedes the labour market downturn that began in the fall of 2008. Although recent immigrants were disproportionately affected by the downturn, this study focuses on hypotheses relating to the recognition of credentials that should not be sensitive to the business cycle. This information may be of particular interest to those developing proposals for the federal, provincial and territorial Foreign Credentials Recognition investment program announced in November 2009.

The LSIC was unique in scope and depth. Following a cohort of new immigrants during their first four years of settlement in Canada, the survey captured both the pre-immigration and post-immigration trajectories of these immigrants by providing information on their occupation prior to landing, intended occupation, credentials received prior to landing and plans for credentials assessment, as well as their actual occupation in Canada, the education obtained or training taken after landing, and their labour-market outcomes such as earnings, participation, employment and unemployment (Kustec et al. 2007).

The same cohort of newcomers (a total of 7,716) was interviewed three times over four years: six months after landing, then two years and four years thereafter. Each time, these newcomers were asked about various aspects of their settlement in the country, including their employment situation and whether their credentials and work experience were accepted in Canada.

This study looks at one specific aspect of newcomers' settlement: recognition of their foreign credentials and work experience. (see *Data source and definitions*).

The assessment of credential recognition and work experience encompasses a number of questions. How does the recognition rate of foreign credentials compare with that of foreign work experience? Are female immigrants more likely than their male counterparts to encounter difficulties obtaining recognition for their degrees and work experience? Does the likelihood of foreign credential recognition vary depending on whether the immigrant is part of a visible minority? How do newcomers with pre-arranged employment or previous knowledge of Canadian society fare in getting their credentials and experience recognized? Does the likelihood of recognition differ depending on the location of study or work (the country where the degree was earned or work experience acquired)? Finally, how do immigrants selected specifically for their skills and education (skilled immigrants) fare compared to other immigrants?

Foreign credentials and work experience

In 2000/2001, over three-quarters of newcomers included in this study were admitted in the skilled immigrants category (as principal applicants or spouses and dependents), and less than 20% in the family class. A small number arrived as refugees or provincial nominees, business immigrants, or as permanent residents in other categories (see *Data source and definitions*). Almost 80% reported being part of a visible minority. Six months after landing in Canada—in the first of three waves of the survey—more than one-half were living in Ontario, the biggest immigrant-receiving province (Table 1).

A significant number of newcomers (over 60%) reported good or very good knowledge of one of the two official languages. Knowledge of English or French is considered a crucial aspect of an individual's job search and the process of professional, trade or academic accreditation (McDade 1988 and Mata 1999). Language ability has also been shown to improve labour-market outcomes among educated immigrants (Adamuti-Trache and Sweet 2005).

Within four years after landing in Canada, 28% of newcomers with foreign credentials had received recognition for these credentials, while 39% of those who had previously worked abroad had their foreign work experience recognized. The two groups (newcomers with credentials and newcomers with work experience) are not mutually exclusive—some of those who

Data source and definitions

The Longitudinal Survey of Immigrants to Canada (LSIC), conducted jointly by Statistics Canada and Citizenship and Immigration Canada (CIC), was based on a representative sample of all immigrants who arrived between October 1, 2000, and September 30, 2001, were age 15 or over at landing, and had applied through a Canadian mission abroad. The sampling frame was an administrative database maintained by CIC. The LSIC was designed to examine the first four years of settlement, a time when newcomers establish economic, social and cultural ties to Canadian society. Topics covered in the survey include language proficiency, housing, education, recognition of foreign credentials and foreign work experience, employment, health, values and attitudes, the development and use of social networks, income, and perceptions of settlement in Canada.

For the purposes of this study, the target population was newcomers age 18 to 59 at landing. They were interviewed at three different times: six months, two years and four years after landing in Canada. In each of the three survey waves, respondents were asked about their foreign credentials and work experience. The survey included questions on the country where they attained their highest education level and the country of their last permanent residence prior to landing. Data from these two questions help shed light on whether assessment and recognition of foreign credentials vary by source country of education and work experience.

Foreign credentials refer to the highest education level (above a high school diploma) attained outside Canada. The LSIC questions cover a range of issues relating to the assessment and recognition of foreign credentials in Canada, such as whether the respondent's credentials had been assessed and the kind of organization that accepted them (an employer, a work-related organization, an educational institution). Foreign credentials could be **fully accepted** (i.e., the employer/institution recognizes a credential as being legitimate within determined standards), **partially accepted** (i.e., the employer/institution partially recognizes a credential as being legitimate within determined standards), or **not accepted** (credential not recognized as being legitimate within determined standards). In some cases, respondents said they were finding out about the process for credential recognition. When respondents were asked about the assessment of their credentials, questions referred specifically to whether they checked to see if their credentials would be accepted as equal to those received in Canada. Other specific questions pertain to the highest degree earned, the main field of study, and the country where the degree was earned. **Foreign credentials are recognized** once they have been fully accepted and

deemed to be equivalent to credentials earned in Canada. For the purposes of this study, only credentials that were fully accepted were considered a 'positive' outcome in the analysis. Partially accepted credentials were treated as 'not accepted.'

Foreign work experience refers to the newcomers' **last job prior to landing**. Respondents were asked whether their foreign work experience was accepted and by what kind of organization (an employer, a professional or work-related organization, or an educational institution).

Recent immigrants are usually defined as those who landed during the five-year period preceding Census Day. In the context of the LSIC, recent immigrants (also referred to as **newcomers** for brevity) are those who were 'followed' during their first four years in Canada, since the survey period in the LSIC is four years.

Newcomers to Canada fall into one of five categories:

- **Principal applicants in the skilled worker category** are permanent residents identified as principal applicants on the application for a permanent resident visa for themselves and, if applicable, accompanying spouse and/or dependents when they applied to immigrate to Canada. For individuals, families or households applying to immigrate to Canada in the skilled worker category, only the principal applicant is assessed on the basis of selection criteria in place at the time of the application.
- **Spouse and dependents in the skilled worker category** are accompanying family members of the principal applicant.
- **Family class immigrants** are permanent residents sponsored by a Canadian citizen or a permanent resident living in Canada. They include spouses and partners, children, parents and grandparents, and other relatives.
- **Refugees** are newcomers who landed in Canada as refugees.
- **Other immigrants** include provincial or territorial nominees who are selected by a province or territory for specific skills that will contribute to the local economy to meet specific labour market needs, business immigrants who are permanent residents selected on the basis of their ability to establish themselves economically in Canada through entrepreneurial activity, self-employment or direct investment, as well as other groups. For further information, visit Citizenship and Immigration Canada at <http://www.cic.gc.ca/english/index.asp>.

had credentials also had work experience, and vice versa (see *Foreign credentials and work experience: Note on the sample*).

Recognition of foreign work experience is more prevalent than recognition of foreign credentials (Chart A). One possible reason could be that work experience is mostly assessed by employers, while credentials are

assessed by work-related organizations and educational institutions as well as employers. According to the LSIC, 83% of new immigrants with their work experience recognized, received this recognition from an employer. One-half of newcomers who had their credentials recognized obtained this recognition through an educational institution, 30% from an employer, and

Table 1 Overview of newcomers' characteristics: Respondents with foreign credentials and work experience

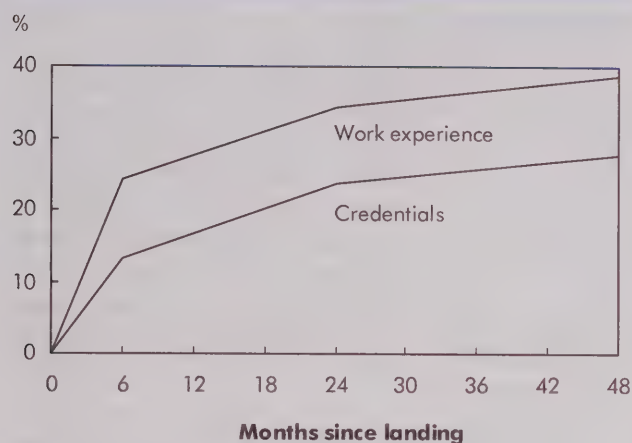
	Distribution at first wave (six months after landing)		Accepted after four years in Canada	
	Credentials	Work experience	Credentials	Work experience
Total	100	100	28	39
Men	52	55	33	51
Women	48	45	22	23
Age at landing				
18 to 24	9	8	24	31
25 to 34	51	50	32	43
35 to 44	30	30	26	38
45 to 59	9	12	19	29
Visible minority status				
No	21	23	29	50
Yes	79	77	27	35
Province or region of residence				
Atlantic	1	1	49	59
Quebec	16	16	29	34
Ontario	56	56	30	40
Prairies	2	3	33	34
Alberta	9	9	23	45
British Columbia and the territories	16	16	19	36
Immigrant category				
Skilled worker, principal applicant	48	46	38	51
Skilled worker, spouse and dependents	28	25	19	31
Family class	16	18	19	31
Refugee	3	5	11	14
Provincial nominees, business immigrants, other	6	6	14	22
Lived in Canada at least one year before landing				
No	93	93	26	37
Yes	7	7	49	59
Job arranged prior to landing				
No	93	93	26	36
Yes	7	7	51	76
Self-assessed spoken language knowledge				
Very well	37	35	35	47
Well	28	27	30	41
Fairly well	18	18	17	25
Poorly, not at all	16	21	19	32

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

20% from a work-related organization. The rate of recognition of foreign credentials and work experience was highest in the first six months of settlement. Indeed, among all new immigrants whose credentials were accepted after four years in Canada, nearly one-half (47%) received this recognition within six months after landing. The corresponding figure for foreign work experience was 62% (Charts A and B).

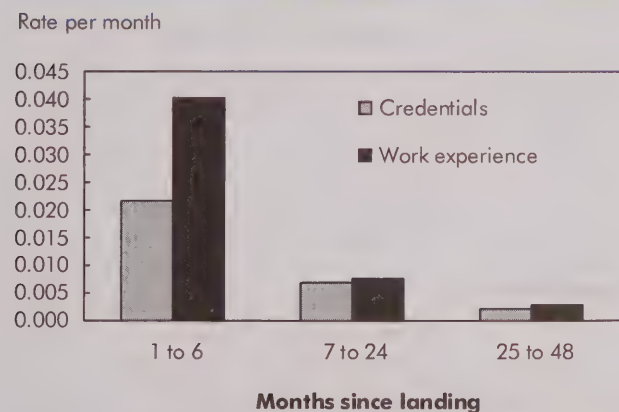
Not all immigrants need to have their credentials recognized by an employer in order to get a job. For example, in the first wave of the survey (six months after landing), 11% of respondents indicated that they did not get their credentials assessed because they knew they 'would be accepted' or thought that they met Canadian standards and there was no need to have them assessed. Also, in the third wave of the survey (four years after landing), 10% of respondents said they did not seek an assessment of their credentials because they knew they would be 'accepted.'⁵ On the other hand, a similar proportion (14% in the first wave and 13% in the third wave) indicated that they did not get their credentials assessed because they knew they would not be accepted or recognized by employers (see *Reasons for not getting foreign credentials assessed*).

There appears to be a significant gap between men and women. Fully one-third of men had their credentials recognized within four years after landing, compared with

Chart A Foreign work experience more likely to be recognized than credentials

Note: Recognition rates are cumulative percentages.
Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

only 22% of women. Men were also more successful in having their work experience recognized—51% compared with 23% of women.

Chart B Hazard rate of recognition of foreign credentials and work experience

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

Foreign credentials and work experience: Note on the sample

A total of 7,716 newcomers were interviewed in three stages (or waves) over four years. The first interview took place six months after landing, the second and third, two years and four years after landing respectively. Among these respondents, one group of 4,826 newcomers reported foreign credentials,⁹ and an overlapping group of 5,615 reported foreign work experience. Newcomers' last occupation prior to landing was used as a proxy for their work experience.

1. Total sample (third wave)	7,716	100.0
2. Credentials only (no work experience)	508	6.6
3. Work experience only	1,297	16.8
4. Both credentials and work experience	4,318	56.0
5. Neither credentials nor work experience	1,593	20.6
6. Sub-total with credentials (2 + 4)	4,826	62.5
7. Sub-total with work experience (3 + 4)	5,615	72.8

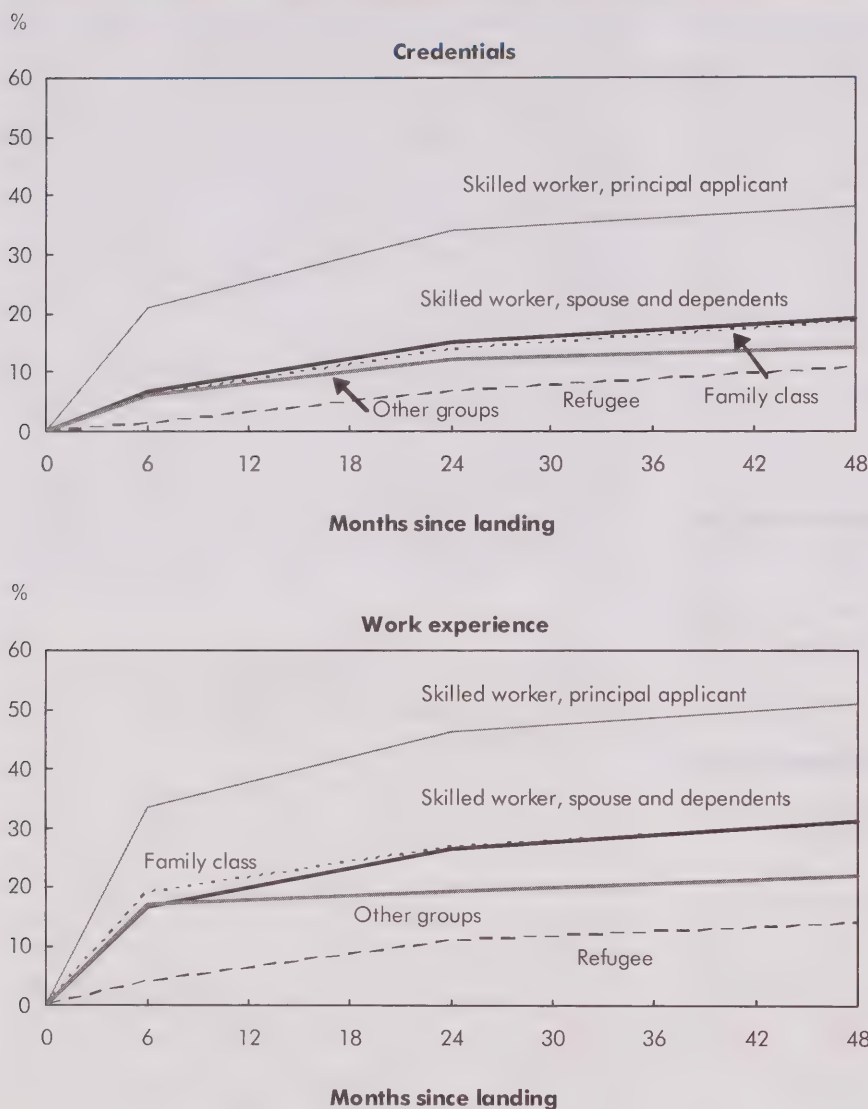
Skilled workers most likely to have foreign credentials and experience recognized

Principal applicants in the skilled workers category make up a distinct group due to the process involved in their selection. These new immigrants are selected based on their labour market attributes, including education, knowledge of official languages and work experience. The recognition rates for principal applicants in the skilled workers category (38% for credentials and 51% for work experience) were higher than for any other group, including spouses and dependents in the skilled workers category. The recognition rates were particularly low for refugees—less than 15% (Chart C).

Vast majority of newcomers highly educated

Almost nine out of ten newcomers with credentials above a high school diploma had a university degree at the time of landing in Canada. Among these, 82% held degrees in fields of study ranging from engineering to agriculture, biology, physics, mathematics and

Chart C Cumulative percentage of new immigrants with foreign credentials and work experience fully accepted by immigrant category



Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

health sciences, as well as the humanities and social sciences. Two-thirds held professional jobs before immigrating to Canada; in management and business administration, natural sciences, health and education. A small number (12%) had blue-collar jobs prior to landing. This occupational distribution reflects the emphasis on high-level skills in the selection and recruitment of immigrants.

Consistent with recent immigration trends, over one-third of newcomers with foreign credentials (35%) earned their highest education degree in China and India. The highest proportion with foreign work experience (30%) were also from those two countries. On the other hand, smaller proportions of newcomers had studied in the United States, the United Kingdom, France and South Korea. Those who had studied or worked in the U.S. or the U.K. were more likely to get recognition for their credentials and work experience (Table 2).

A small proportion of newcomers (7%) had arranged employment prior to landing, and a similar proportion had previous Canadian experience (they had lived in Canada for at least one year). After four years of residence in Canada, newcomers who had a job arranged prior to landing had the highest rate of recognition for their work experience (76%) and credentials (51%). Also, a majority of newcomers with previous Canadian experience received recognition for their credentials (59%) and work experience (49%) (Table 1).

Modelling credential and experience recognition

Logistic regression models were run in order to determine whether, and to what extent, evidence from the descriptive analysis holds when controlling for the effect of individual characteristics on the probability of recognition of foreign credentials and work experience. Because the LSIC was conducted in three waves, the statistical model used in this analysis estimates the probability that credentials or work experience have been recognized at each survey occasion, conditional upon not previously being

Table 2 Education and work experience of newcomers with foreign credentials and work experience

	Six months after landing		Accepted after four years in Canada	
	Credentials	Work experience	Credentials	Work experience
	%			
Education level at landing				
Below high school	...	5	...	28
High school	...	11	...	26
Postsecondary, trade	...	19	...	35
Bachelor, MS, MD, Ph.D.	...	66	...	43
Level and field of highest education				
Some university or college, or below, any field	11	...	16	...
University				
Education, humanities and social science	25	...	25	...
Commerce, management, business administration	24	...	30	...
Engineering	20	...	33	...
Health	4	...	31	...
Agriculture, biology, physics, mathematics	10	...	36	...
No specialization	7	...	20	...
Last occupation prior to landing				
Managers and business administrators	...	16	...	34
Professional and technical in natural sciences	...	28	...	49
Professional and technical in health	...	6	...	43
Teachers and professors	...	10	...	32
Professional and technical in other sectors (law, social, arts, etc.)	...	6	...	37
Clerical, sales and other service occupations	...	21	...	32
Blue collar	...	12	...	36
Not stated, not coded	...	1	...	44
Country of highest education or last permanent residence				
United States	3	4	51	62
United Kingdom	3	2	43	64
France	3	2	24	65
South Korea	4	4	10	14
India	14	11	27	35
China	21	19	28	28
Philippines	9	7	17	48
Pakistan	5	4	34	33
Romania	4	4	34	53
Russia	2	1	26	42
All other countries	32	41	28	40

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

recognized. Thus the probability at the first time point includes all respondents in the sample, and the probabilities at the later time points exclude those whose credentials or work experience have previously been recognized. In other words, the model estimates the conditional probability of foreign credentials and work experience being recognized at each time point (see *Multivariate analysis*).

These predicted probabilities refer to estimated percentages of respondents whose foreign credentials and foreign experience would be accepted after six months, between six months and two years, or between two years and four years of Canadian residence.

This analysis confirms most of the observations from the descriptive analysis. For example, at each of the three periods, the predicted probability of recognition was consistently higher for work experience than for credentials. In the work experience model, the probability of recognition is highest (65%) in the first six months of settlement and falls thereafter, to 45% in the second wave and 24% in the third wave. However, the predicted probability of foreign credential recognition is stable in the first and second waves, and then falls in the third wave. Six months after landing, newcomers had a 35% predicted probability of having their credentials recognized. Among those who did not receive recognition after six months the probability was 37% two years after landing, similar to the first period, then fell to 17% in the third period (data not shown).

Multivariate analysis

Logistic regression was used to estimate the probability of an outcome (e.g., obtaining foreign credential or work experience recognition) while accounting for the effects of other variables. These explanatory variables or covariates included age, sex, education, immigrant category (skilled workers, refugees, etc.), visible minority status, province of residence, knowledge of official languages, pre-arranged job at landing, previous Canadian experience, source country of foreign credentials and work experience, field of highest education, and last job prior to landing.

Because this study examines the probability p of an outcome at three discrete points in time—which correspond to the three waves of the survey—a discrete-time proportional hazard model was used. The discrete-time method for event-history analysis is based on the fact that “the history of an individual or group can always be characterized as a sequence of events” (Allison 1984).

The original survey data for each respondent were put into as many lines as the number of waves between newcomers' landing in Canada and the time of the survey, each line representing one period. For the dependent variable defined as recognition of credentials or work experience, the code 0 was used when the individual was at 'risk' of having credentials or work experience recognized, and 1 when the immigrant experienced the outcome, i.e., recognition for the first time since landing. The respondent ceases to be 'at risk' upon recognition of his/her credentials or work experience.

Process time t is the number of months in Canada since landing, and takes three values: 1 to 6 months, 7 to 24 months, and 25 to 48 months. Logistic regression is then used for statistical analysis. The intensity logistic (or logit) function takes the following general form:

$$\text{Logit } p_i(t) = y(t) + \sum_l \alpha_l \chi_{il} + \sum_m \beta_m w_{im}(t)$$

The intensity of recognition of credentials or work experience depends on

- a time baseline $y(t)$, which is piecewise constant, where t is the duration in months since landing in Canada;
- some fixed covariates $\sum_l \alpha_l \chi_{il}$, including a constant term;
- some time-varying covariates $\sum_m \beta_m w_{im}(t)$.

Coefficients from these models were converted into predicted probabilities for ease of interpretation. Predicted probabilities were calculated for each value of all covariates at each of the three time points and then the three results were summed in order to get the predicted probabilities after four years in Canada. All statistics were weighted to reflect population totals and models were run using bootstrap weights to correct variance estimates for survey design—a technique called design-based variance estimation.

Throughout the four-year survey, a number of newcomers did not have their credentials assessed (see *Reasons for not getting foreign credentials assessed*) or reported having received partial recognition (see *New immigrants with partially accepted foreign credentials and work experience*). This may partly explain the low predicted probability of credential recognition four years after landing for the remaining immigrants in the cohort.

Also, the reason why the recognition probability is higher for foreign work experience than for credentials may lie in different factors, including the fact that—at least for employers in certain industries—work experience is a more tangible asset than credentials. Credentials can be hard to assess, or deemed outdated or unrelated to labour market needs, whereas work experience can be considered 'concrete' or tangible.

Recognition rate lower for women, older immigrants

A smaller proportion of women had their work experience recognized by an employer, a work-related organization or an educational institution (48% versus 56% for men). Age is also a strong correlate—the older the immigrant, the lower the likelihood of having their credentials or work experience recognized. Younger newcomers (age 25 to 34) were more likely to have their credentials and experience recognized (32% and 48% respectively) than their counterparts age 35 to 44 (28% and 43% respectively). The probabilities are even lower for older immigrants age 45 to 59—21% and 35% respectively (Table 3).

Newcomers who were part of a visible minority also had a lower probability of having their work experience recognized compared to their non-visible minority counterparts (42% versus 52%). In contrast, the two groups had similar chances of having their credentials recognized—31% and 28% respectively. Visible minority status has been shown to affect immigrants' prospects in the labour market (Oreopoulos 2009).

Multivariate analysis also confirms the findings for principal applicants in the skilled workers category. These newcomers have the highest predicted probability of receiving recognition for their credentials (39%) and work experience (56%) among all classes of immigrants. Refugees had the lowest predicted probability of recognition. In fact, throughout their first four years in Canada, immigrants selected as skilled workers were the most successful in obtaining recognition for their credentials and work experience.

Table 3 Recognition of foreign credentials and work experience by selected sociodemographic characteristics

	Credentials model			Work experience model		
	Coefficients	Odds ratio	Predicted probability of recognition (%)	Coefficients	Odds ratio	Predicted probability of recognition (%)
Sex						
Men (ref.)	0.000	1.00	36	0.000	1.00	56
Women	-0.166	0.85	32	-0.225**	0.80	48
Age at landing						
18 to 24	0.241	1.27	39	0.053	1.05	50
25 to 34 (ref.)	0.000	1.00	32	0.000	1.00	48
35 to 44	-0.176***	0.84	28	-0.148***	0.86	43
45 to 59	-0.490**	0.61	21	-0.431*	0.65	35
Visible minority status						
No (ref.)	0.000	1.00	28	0.000	1.00	52
Yes	0.122	1.13	31	-0.291**	0.75	42
Immigrant category						
Skilled immigrant, principal applicant (ref.)	0.000	1.00	39	0.000	1.00	56
Skilled immigrant, spouse and dependents	-0.599*	0.55	23	-0.473*	0.62	39
Family class	-0.792*	0.45	20	-0.539*	0.58	37
Refugee	-1.295*	0.27	12	-1.478*	0.23	17
Provincial nominees, business immigrants, other	-0.870*	0.42	18	-1.076*	0.34	24

* significantly different from the reference group (ref.) at the 0.001 level; ** at the 0.01 level; *** at the 0.05 level
Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

Credential recognition increases with education

The higher the level of education, the greater the probability of credential recognition in Canada (31% for newcomers with a university degree compared with 20% for their counterparts with some university/college education or below). However, education level doesn't seem to play a role in work experience recognition—newcomers with university degrees were no more likely than those with an education below the high school level⁶ to have their work experience recognized—46% and 45% respectively (data not shown).

Also, the credential-recognition model shows little variation by field of study except for degrees with no specialization, for which the rate of recognition is lower (Table 4). This model indicates that foreign-trained immigrants in engineering and health had recognition probabilities that are slightly higher than recognition probabilities for immigrants trained in education, humanities and social sciences, and in commerce,

Table 4 Recognition of foreign credentials by field of study

	Coef- ficients	Odds ratio	Predicted probability of recog- nition (%)
Level and field of highest education			
Some university or college, or below, any field	-0.541*	0.58	20
University			
Engineering (ref.)	0.000	1.00	33
Education, humanities and social science	-0.121	0.89	29
Commerce, management, business administration	-0.047	0.95	31
Health	0.176	1.19	38
Agriculture, biology, physics, mathematics	-0.055	0.95	31
No specialization	-0.270	0.76	26

* significantly different from the reference group (ref.) at the 0.001 level
Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

management and business administration. This differs from other studies which found that regulated occupations such as physicians and engineers are especially difficult to enter due to re-accreditation or certification requirements (McDade 1988, and Boyd and Schellenberg 2007).

Country of highest education or last residence related to recognition

Newcomers who attained their highest level of education or had their last permanent residence in the United States or the United Kingdom prior to landing in Canada had the highest probability of receiving recognition for their credentials (57% and 54% respectively) and work experience (78% and 76% respectively). Results for France were mixed: while credentials earned in this country had a 21% probability of being recognized—the third lowest after the Philippines and South Korea—French work experience was just as likely to be recognized as American or British work experience. South Korea, another developed OECD country, also fares poorly, both in terms of credentials and work experience assessment (Table 5).

Data from the 2006 Census also show that immigrants who earned their highest degree in South Korea had one of the lowest match rates between occupation and

field of study—only 12% of these immigrants worked in a regulated occupation that matched their field of study, similar to immigrants who earned their highest degree in Haiti, Cuba and El Salvador (Zietsma 2010).

For newcomers who had completed their highest education level in China and India (over one-third), the probability of credential recognition was similar, but recognition was higher for work experience acquired in India.

The effect of country or region of origin on labour market outcomes such as earnings or job–education mismatch has been well documented. Immigrant professionals from the United States, the United Kingdom and Western Europe are far more successful in the Canadian labour market than their counterparts from other regions of the world (Reitz 2001, Boyd and Thomas 2002, and Adamuti-Trache and Sweet 2005).⁷

Another series of models was run using ten sub-continental regions instead of ten specific countries, with the United States treated as a single region, and Australia and New Zealand grouped with the United Kingdom. The other regions were Western Europe, Eastern Europe, Latin America and the Caribbean, Sub-Saharan Africa, West Asia, South Asia, East Asia, and Southeast Asia and the Pacific.

Table 5 Recognition of foreign credentials and work experience by country of highest education or last permanent residence

	Credentials model			Work experience model		
	Coefficients	Odds ratio	Predicted probability of recognition (%)	Coefficients	Odds ratio	Predicted probability of recognition (%)
United States (ref.)	0.000	1.00	57	0.000	1.00	78
United Kingdom	-0.087	0.92	54	-0.042	0.96	76
France	-1.209*	0.30	21	-0.088	0.92	74
South Korea	-1.732*	0.18	13	-1.948*	0.14	17
India	-0.867*	0.42	28	-0.859*	0.42	42
China	-0.802*	0.45	30	-1.219*	0.30	32
Philippines	-1.389*	0.25	18	-0.472***	0.62	57
Pakistan	-0.639**	0.53	35	-1.022*	0.36	37
Romania	-0.646**	0.52	34	-0.661**	0.52	49
Russia	-0.664***	0.51	34	-1.020*	0.36	37
All other countries	-0.752*	0.47	31	-0.705*	0.49	48

* significantly different from the reference group (ref.) at the 0.001 level; ** at 0.01; *** at 0.05

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

The results of these models (data not shown) indicate that English-speaking regions (the United States as well as the United Kingdom–Australia–New Zealand group) had a higher rate of foreign credential and work experience recognition. All other regions, including Western Europe, fell significantly lower. Only France differed from the rest of Western Europe in terms of work experience recognition. Because of the small sample size, it was not possible to investigate whether this French 'specificity' applied to other European countries like the Netherlands or Ireland, or Nordic countries.

The fact that Western Europe ranked low compared to the United States and the United Kingdom suggests that the quality of education may not be the only factor involved in the assessment of foreign credentials and work experience in Canada. Language of study is a crucial factor since university-educated immigrants with the highest match rates between field of study and occupation studied in English-speaking countries (Zietsma 2010).

Pre-arranged jobs and previous Canadian experience have major effects

Not surprisingly, having a pre-arranged job at landing is the strongest correlate of work experience recognition: 87% compared to 42% for those without a prior employment arrangement and 56% for those selected as skilled workers. The predicted probability of credential recognition for newcomers with a pre-arranged job was also significantly higher (40%) than for those who did not have a pre-arranged job (29%). Similarly, compared to newcomers who did not have previous Canadian experience, those who did have such experience had a higher probability of credential and work experience recognition (Table 6).

Newcomers with pre-arranged employment or previous Canadian experience are more likely to be aware of the labour market conditions and the potential challenges of obtaining credential or work experience recognition. Having a pre-arranged job or having previously worked in Canada implies a working knowledge of English or French, which in turn can

Table 6 Pre-arranged employment or previous Canadian experience and recognition of foreign credentials or work experience

	Credentials model			Work experience model		
	Coefficients	Odds ratio	Predicted probability of recognition (%)	Coefficients	Odds ratio	Predicted probability of recognition (%)
Lived in Canada at least one year before landing						
No (ref.)	0.000	1.00	29	0.000	1.00	44
Yes	0.488**	1.63	43	0.199	1.22	51
Job arranged prior to landing						
No (ref.)	0.000	1.00	29	0.000	1.00	42
Yes	0.378**	1.46	40	1.045*	2.84	87
Self-assessed spoken language knowledge						
Very well (ref.)	0.000	1.00	35	0.000	1.00	50
Well	-0.087	0.92	32	-0.100	0.91	46
Fairly well	-0.588*	0.56	21	-0.517*	0.60	34
Poorly, not at all	-0.483*	0.62	23	-0.256**	0.77	41

* significantly different from the reference group (ref.) at the 0.001 level; ** at 0.01

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

Table 7 Recognition of foreign experience by last occupation prior to landing

	Coef- ficients	Odds ratio	Predicted probability of recog- nition (%)
Professional and technical in natural sciences (ref.)	0.000	1.00	50
Managers and business administrators	-0.356*	0.70	38
Professional and technical in health	-0.061	0.94	48
Teachers and professors	-0.349**	0.71	39
Professional and technical in other sectors (law, social, arts, etc.)	-0.273***	0.76	41
Clerical, sales and other service occupations	-0.227***	0.80	42
Blue collar	-0.070	0.93	48
Not stated, not coded	0.009	1.01	51

* significantly different from the reference group (ref.) at the 0.001 level; ** at 0.01; *** at 0.05

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

improve communication with Canadian employers and other organizations. Newcomers who reported having poor or no knowledge of either official language did not fare as well as their counterparts who reported knowing either English or French (or both) very well.

Last job prior to landing

To ensure adequate sample size, previously held jobs were grouped in broad occupational groups. New immigrants who, prior to landing in Canada, had worked in the natural and applied sciences field (which includes engineers), as well as their counterparts who had worked in the health field, had the highest predicted probability of achieving work experience recognition after four years of residence in Canada (50% and 48% respectively). These two occupational groups are similar in that they are both regulated by a certification or licensing body. Interestingly, newcomers who held blue collar jobs (many in trades occupations that are not regulated) prior to landing had a similar probability to that of their counterparts in health occupations in terms of work experience recognition (48%) compared to 38% for newcomers in business occupations and 39% among teachers and professors (Table 7).

Credential recognition lower in Alberta and British Columbia than in Ontario

New immigrants living in Alberta and British Columbia and the territories⁸ had a lower probability (24% and 23% respectively) of credential recognition than their counterparts in Ontario (32%). Newcomers residing in the Atlantic region appear to have had the best odds of credential recognition (59%). Although their numbers were small, immigrants living in Newfoundland and Labrador in 2006, for example, were

Table 8 Recognition of foreign credentials and work experience by province or region of residence

	Credentials model			Work experience model		
	Coefficients	Odds ratio	Predicted probability of recognition (%)	Coefficients	Odds ratio	Predicted probability of recognition (%)
Ontario (ref.)	0.000	1.00	32	0.000	1.00	47
Atlantic	0.757***	2.13	59	0.139	1.15	52
Quebec	-0.166	0.85	28	-0.496*	0.61	32
Prairies	0.479	1.61	48	-0.242	0.79	39
Alberta	-0.334**	0.72	24	0.184	1.20	54
British Columbia and the territories	-0.410*	0.66	23	0.057	1.06	49

* significantly different from the reference group (ref.) at the 0.001 level; ** at 0.01; *** at 0.05

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

New immigrants with partially accepted foreign credentials and work experience

For increased accuracy of the analysis, a conservative approach was adopted by considering only the group of new immigrants whose foreign credentials and work experience were fully accepted. Those who received partial acceptance were treated as 'not accepted.' However, given the increased difficulties they are likely to face in the labour market, it would be worthwhile to look at some of their characteristics (Table 9).

After four years of settlement in Canada, 12% of new immigrants with foreign credentials and 18% of those with previous work experience had obtained partial recognition, compared with 28% of their counterparts whose credentials had been fully accepted and 39% whose work experience had been fully accepted. Not surprisingly, data on partial acceptance of credentials and work experience reveal certain patterns that are consistent with both the descriptive and multivariate results for the groups with full recognition. For example, partial recognition of foreign work experience tended to be higher for female immigrants and people who were part of a visible minority group. Also, refugees and Filipinos were the most likely to receive partial recognition for their credentials, compared to newcomers selected as skilled workers—who fared the best in this respect. Immigrants who earned their highest degree or whose last permanent residence was in the United States or the United Kingdom were the least likely to receive partial recognition for their credentials and work experience since the credentials and work experience for the majority of them had been fully accepted.

Table 9 Newcomers with partially accepted foreign credentials or work experience after four years in Canada

	Foreign credentials accepted			%	Foreign experience accepted		
	Total, fully or partially	Fully	Partially		Total, fully or partially	Fully	Partially
Total	40	28	12		56	39	18
Men	47	33	14		64	51	13
Women	32	22	9		48	23	25
Age at landing							
18 to 24	42	24	18		45	31	13
25 to 34	44	32	12		61	43	18
35 to 44	38	26	11		56	38	18
45 to 59	30	19	11		45	29	16
Visible minority status							
No	42	29	13		61	50	11
Yes	39	27	12		55	35	20
Immigrant category							
Skilled immigrant, principal applicant	51	38	13		72	51	21
Skilled immigrant, spouse and dependents	31	19	11		49	31	18
Family class	32	19	13		44	31	14
Refugee	21	11	11		23	14	9
Provincial nominees, business immigrants, other	23	14	9		29	22	7
Country of highest education or last permanent residence							
United States	54	51	3		69	62	7
United Kingdom	49	43	6		70	64	6
France	37	24	13		76	65	11
South Korea	17	10	7		21	14	7
India	43	27	16		63	35	27
China	33	28	5		54	28	25
Philippines	42	17	25		66	48	18
Pakistan	48	34	13		54	33	21
Romania	45	34	12		68	53	15
Russia	46	26	19		58	42	16
All other countries	42	28	13		54	40	14

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

the most likely (60%) to be working in occupations that matched their field of study, only three percentage points behind the Canadian-born in the province (Zietsma 2010).

With respect to foreign work experience, newcomers living in Ontario had the highest probability of experience recognition within four years after landing (47%), while their counterparts residing in Quebec had the lowest (32%). Results for the other provinces were not statistically different from Ontario (Table 8).

Reasons for not getting foreign credentials assessed

After four years of residence in Canada, about 40% of immigrants who arrived between October 1, 2000, and September 30, 2001, had not yet had their credentials assessed. The main reason for not having credentials assessed was that respondents saw no need for doing so or planned to work in an occupation different from their field of study—23% provided this reason after four years in Canada, compared to 5% six months after landing. This suggests that many new immigrants who did not have their credentials assessed had changed their plans regarding both the assessment of their credentials and the type of job to take during their first four years in Canada. Similar proportions of newcomers said they didn't have their credentials assessed for completely opposite reasons: 10% said they knew their credentials would be accepted, while 12% said they knew their credentials would not be accepted (Table 10).

Table 10 Reasons for not having foreign credentials assessed after six months or four years in Canada

	Six months after landing	Four years after landing
	%	
Total	100.0	100.0
No need/want to work in another field	4.9	23.0
Haven't had time/too busy	24.1	16.1
I know my credentials would not be accepted (friend told me, common knowledge, etc.)	9.0	11.7
Not a main priority (e.g., need to learn or improve language skills first)	3.3	10.2
I know my credentials would be accepted	6.4	9.8
Don't know where/how to get my credentials assessed/process too complicated	15.0	7.3
Cannot afford to have them assessed	3.0	3.7
Planning to return to school	5.5	3.6
Assessments would not be recognized by employers	4.7	1.6
Other reasons	24.1	13.0

Source: Statistics Canada, Longitudinal Survey of Immigrants to Canada, 2000 to 2005.

Summary

This study looked at the cohort of new immigrants who landed between October 2000 and September 2001, examining their outcomes in terms of foreign credential and work experience recognition at three time points over a four-year period—six months, two years and four years after landing.

Among newcomers who landed in Canada from late 2000 to late 2001, just over one-quarter obtained recognition for their education credentials and two out of five received recognition for their work experience within four years after landing. About one-half of newcomers whose credentials or work experience were accepted by an employer, a professional association or an educational institution received recognition within their first six months of residence. A number of these individuals had pre-arranged employment or had resolved the issue of credential and work experience equivalencies prior to landing.

The study found that immigrants who landed as principal applicants in the 'skilled worker category'—individuals specifically selected for their skills and education—had the highest predicted probability of having their credentials and work experience recognized (39% and 56% respectively) after four years of residence in Canada, compared to other newcomers such as family class immigrants and refugees.

Women and older immigrants were less likely to have their work experience or credentials recognized within four years after landing compared to men and younger immigrants.

Another factor related to the likelihood of foreign credential recognition was the source country of the highest level of education and work experience. Newcomers who attained their highest education level or had worked at their last job in the United States or the United Kingdom prior to landing in Canada were significantly more likely to receive recognition for their

credentials and work experience. Results were mixed for France: while credentials earned in this country had a low probability of being recognized—in fact, the third lowest after the Philippines and South Korea—French work experience was just as likely to be recognized as American or British work experience.

Recent immigrants who had completed their highest level of education in China and India had similar probabilities of credential recognition, albeit lower, to the United States and the United Kingdom. However, Indian work experience was more likely to be recognized than Chinese experience.

Perspectives

■ Notes

1. In 1994, about 21% of newcomers held a university degree (Citizenship and Immigration Canada 2004, p. 47).
2. This is a report on employment quality for immigrant and Canadian-born workers. It is based on 2008 data from the Labour Force Survey (LFS). These data come from five questions designed to monitor immigrants' employment patterns and trends. Added to the LFS in January 2006, these questions pertain to the country of birth, landed immigrant status, the year and month that status was obtained, and the country where the degree reflecting the highest level education was earned.
3. Using data from the 2006 Census of Population, this study looks at university degree holders among immigrant and Canadian-born workers in regulated occupations. It sheds light on immigrants with foreign credentials and how they fare with respect to job-education mismatch compared to workers born or educated in Canada.
4. Wayland conducted the study for Ontario. Similar concerns were voiced during the Bouchard-Taylor Commission hearings in Quebec (Bouchard and Taylor 2008).
5. No similar questions were asked about work experience.
6. Newcomers with an education below the high school level made up 5% of all new immigrants in 2000/2001.
7. There are exceptions, however. For instance, while Western-trained engineers are more successful in matching their education with their actual occupation, among foreign-born physicians, those born in Africa and South Asia have better chances of working as doctors than other groups, including those born in the United States, Western Europe and Oceania (Boyd and Schellenberg 2007). Place of training is assumed to be the same as place of birth, which may not be always the case.
8. Because there are few immigrants in the territories, they were grouped with British Columbia. Including or excluding these immigrants would not change the results for British Columbia. However, their exclusion would create gaps in some respondents' life history (represented by their answers to the three waves). These gaps are due to the fact that the residence variable is not static: As newcomers in the LSIC sample are followed throughout the survey period, they are asked about their residence during each wave.
9. About 300 respondents with foreign credentials were excluded from the analysis, mainly because it was not possible to match the level of their highest degree reported in the credentials module of the survey with their highest level of education reported in the education section of the main questionnaire. A few other respondents were also excluded because they reported having completed their highest level of education in Canada. There were no exclusions of respondents with foreign work experience. In the third wave of the survey, the credentials sub-sample represents 63% of the LSIC sample, and the work experience sub-sample, 73%.

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Offshorability and wages in the service sector

Yuqian Lu and René Morissette

In the early 1980s, the notion that manufacturing jobs in advanced economies were being lost to developing countries gained attention. According to one popular hypothesis, 'de-industrialization' would leave the service sector polarized into high-wage 'knowledge' jobs and low-wage personal service jobs (Bluestone and Harrison 1982).

A new version of the de-industrialization hypothesis emerged recently. Some authors noted that employers had started using offshoring-outsourcing abroad—not only for manufacturing goods, but also for jobs in the service sector that had high skill requirements (Businessweek 2003 and 2004). According to this view, the rise in information and communication technologies (ICTs) and the availability of relatively skilled workers in fast-growing countries were making service offshoring feasible. These factors were assumed to enable firms to move highly paid jobs like engineering and informatics to China, India and Eastern European countries with the skilled workforce required for these jobs.¹

Like any form of international trade, service offshoring may affect both employment and domestic wages.² Service-producing jobs that are offshorable that can technically be moved abroad even though they have not been relocated yet—might be subject to greater downward wage pressure than other service-sector jobs due to competition from workers in emerging economies with lower wages. As a result, the wages for offshorable jobs might grow more slowly than for other jobs.

On the other hand, offshoring is just one of many factors that contribute to occupational wage trends and even its effect may not be simple and direct. If the offshoring of some jobs yields a competitive advantage to a firm, it may expand and increase employment in closely related occupations, resulting in upward

wage pressure. In addition, demand for some service-producing occupations that could be moved abroad could be growing in Canada, for reasons unrelated to offshoring. If so, there would also

Whether wages in offshorable service occupations grew more or less than wages in other service jobs is an empirical question this article examines.

Several studies have examined the association between offshoring and wages in manufacturing. Using the share of intermediate inputs that are imported as a measure of offshoring, many studies find that foreign outsourcing increased the relative wages of nonproduction workers in manufacturing over the past few decades (Feenstra and Hanson 1996 and 1999; Hijzen et al. 2004; and Yan 2006).

Other studies have assessed the impact of trade and offshoring on wages in the service sector and across certain industries. Liu and Trefler (2008) link U.S. trade data on imports and exports of private-sector services to workers' earnings data. They find service offshoring to China and India has little impact on earnings of American service-sector workers. Ebenstein et al. (2009) show that one channel through which trade and offshoring put downward pressure on aggregate U.S. wages is the displacement of some manufacturing workers to lower-paying jobs in service industries.

To date, no Canadian study has examined the association between offshorability and the evolution of wages in the service sector. This article fills this gap by tracking wage growth in offshorable and non-offshorable service occupations over the past decade. Following Organisation for Economic Co-operation and Development (OECD) work from van Welsum and Reif (2005), offshorable service-producing occupations are defined as those that satisfy four criteria (see *Data sources and definitions*). They make intensive use of ICTs,

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Data sources and definitions

The data used in this article are drawn from the March and September files of the Labour Force Survey. For tables 1 and 2, the sample consists of private-sector⁴ employees age 15 to 64, who are not full-time students and are employed outside manufacturing, primary industries and construction. The restriction that workers be employed in one of the five occupational groups shown in Table 3 is added for the discussion of the model results.

Offshoring, outsourcing and offshorability are three distinct concepts. Blinder and Krueger (2009) point out that "offshoring refers to the movement of home-country jobs to another country" whether or not those jobs go to another company. It is different from outsourcing, "which refers to moving jobs out of the company, regardless of whether those jobs leave the country." Finally, "offshoring, which is an *observable action*, must also be distinguished from *offshorability*, which is a *job characteristic*." A job is offshorable if the underlying tasks can "be moved overseas in principle, even if that movement has not actually occurred." This article examines whether wages in offshorable service-producing occupations have displayed different trends since the late 1990s, compared to other service-producing jobs.

Van Welsum and Reif (2005) argue that occupations that are potentially affected by service offshoring share many characteristics. First, they make intensive use of information and communication technologies (ICTs). Second, they produce an output that can be traded or transmitted by ICTs. Third, their knowledge content is highly codifiable. Fourth, they require no face-to-face contact.

Using these four criteria, van Welsum and Reif (2005) select a subset of Canadian occupations, based on the 1991 Standard Occupational Classification (SOC), that are potentially affected by service offshoring. Because the occupation-level data in the Labour Force Survey are based on the 2001 National Occupational Classification for Statistics (NOC-S), our subset of occupations is, with minor exceptions, identical to that of van Welsum and Reif (2005).⁵

Offshorable service-producing occupations Management Occupations

- A121 Engineering Managers
- A122 Computer and Information Systems Managers
- A123 Architecture and Science Managers
- A301 Insurance, Real Estate and Financial Brokerage Managers
- A302 Banking, Credit and Other Investment Managers
- A303 Other Business Services Managers
- A311 Telecommunication Carriers Managers
- A312 Postal and Courier Services Managers
- A392 Utilities Managers

Business, Finance and Administrative Occupations

- B011 Financial Auditors and Accountants
- B012 Financial and Investment Analysts
- B013 Securities Agents, Investment Dealers and Brokers
- B014 Other Financial Officers
- B022 Professional Occupations in Business Services to Management

- B111 Bookkeepers
- B112 Loan Officers
- B114 Insurance Underwriters
- *B211 Secretaries (Except Legal and Medical)
- *B212 Legal Secretaries
- *B213 Medical Secretaries
- *B214 Court Recorders and Medical Transcriptionists
- *B311 Administrative Officers
- *B312 Executive Assistants
- *B412 Supervisors, Finance and Insurance Clerks
- *B511 General Office Clerks
- *B513 Records Management and Filing Clerks
- *B514 Receptionists and Switchboard Operators
- *B522 Data Entry Clerks
- *B524 Telephone Operators
- *B531 Accounting and Related Clerks
- *B532 Payroll Clerks
- *B533 Customer Service Representatives – Financial Services
- *B534 Banking, Insurance and Other Financial Clerks
- *B553 Customer Service, Information and Related Clerks
- *B554 Survey Interviewers and Statistical Clerks
- B523 Desktop Publishing Operators and Related Occupations

Natural and Applied Sciences and Related Occupations

- C181 Computer and Network Operators and Web Technicians
- C011 Physicists and Astronomers
- C012 Chemists
- C013 Geologists, Geochemists and Geophysicists
- C014 Meteorologists
- C015 Other Professional Occupations in Physical Sciences
- C021 Biologists and Related Scientists
- C031 Civil Engineers
- C032 Mechanical Engineers
- C033 Electrical and Electronics Engineers
- C034 Chemical Engineers
- C041 Industrial and Manufacturing Engineers
- C042 Metallurgical and Materials Engineers
- C043 Mining Engineers
- C044 Geological Engineers
- C045 Petroleum Engineers
- C046 Aerospace Engineers
- C047 Computer Engineers (Except Software Engineers)
- C048 Other Professional Engineers, not elsewhere classified
- C051 Architects
- C052 Landscape Architects
- C053 Urban and Land Use Planners
- C054 Land Surveyors
- C061 Mathematicians, Statisticians and Actuaries
- C071 Information Systems Analysts and Consultants
- C072 Database Analysts and Data Administrators
- C074 Computer Programmers and Interactive Media Developers
- C152 Industrial Designers
- C172 Air Traffic Control and Related Occupations

Data sources and definitions (concluded)**Social Science, Education, Government Service and Religion**

- E012 Lawyers and Quebec Notaries
- E031 Natural and Applied Science Policy Researchers, Consultants and Program Officers
- E032 Economists and Economic Policy Researchers and Analysts
- E033 Business Development Officers and Marketing Researchers and Consultants

Occupations in Art, Culture, Recreation and Sport

- F011 Librarians
- F013 Archivists
- F021 Authors and Writers
- F022 Editors
- F023 Journalists
- F025 Translators, Terminologists and Interpreters

Sales and Service Occupations

- G131 Insurance Agents and Brokers

Morissette and Johnson (2007) disaggregate offshorable service-producing occupations into two groups: professional occupations and clerical occupations (denoted above by an asterisk). The former group includes jobs held by highly skilled workers such as engineers, architects, computer programmers, translators and journalists. The latter includes occupations (requiring a lower skill level) such as secre-

taries, data entry clerks and telephone operators. Natural and applied sciences and related occupations will be denoted as "natural and applied sciences occupations" while occupations in social science, education, government service and religion will be denoted as "social sciences occupations."

Several non-standard industry groupings are used in the article. High-skill service industries include finance, insurance, real estate and leasing, professional, scientific, and technical services, business, building, and other support services. Public service industries include education services, health care and social assistance, and public administration. Other service-producing industries include wholesale trade, transportation and warehousing, performing arts and heritage, and amusement.

There are several limitations. The analyses are based on a single definition of offshorability. Alternative definitions could yield different results. Since no firm-level data on the intensity of service offshoring are currently available, the evidence presented here may reflect demand-side factors other than service offshoring that cannot be measured with the Labour Force Survey (LFS). Finally, no distinction is made between service offshoring to low-wage countries and service offshoring to high-wage countries. These two types of offshoring may have quite different impacts on the Canadian labour market.

produce an output that can be traded or transmitted by ICTs, require no face-to-face contact, and their knowledge content is highly codifiable.

Offshorable service-producing occupations

Of all jobs held in the private service sector, about one-quarter are potentially subject to service offshoring (Table 1).⁶ This pattern is observed in most provinces. Service-sector jobs most susceptible to offshoring are held by workers employed in business, finance and administrative occupations (e.g., secretaries, clerks and telephone operators) or in natural and applied sciences (e.g., computer programmers, engineers and architects): more than one-half of these workers are in offshorable positions. Because they generally require face-to-face contact or involve a service that cannot be transmitted by ICTs, jobs in sales and service occupations and those in retail trade, accommodation and food services are the least likely to be relocated to another country. At most 6% of the jobs in these categories are offshorable.⁷

Service-sector jobs held by low-educated workers are not the most susceptible to offshoring. In fact, the opposite is true. Overall, about 40% of service-sector jobs held by university graduates were at risk of being relocated, more than twice the rate of 16% observed for jobs held by individuals having a high school education or less.

Because of their overrepresentation in clerical jobs, many of which are offshorable, women are more likely than men to be in offshorable service-producing occupations. Women in all age groups are more likely to be in offshorable jobs, but there is some variation in gender patterns across education levels. While women with a high school education or less are at least three times more likely than their male counterparts to be in jobs subject to service offshoring, female university graduates are no more likely than male university graduates to be in such jobs.

Other gender differences are worth noting. In 2009, men employed in large firms (those with 500 employees or more) were roughly twice as likely to be in

Table 1 Service-sector jobs susceptible to offshoring

	1999			%	2009		
	Both sexes	Men	Women		Both sexes	Men	Women
All service-sector jobs	25.6	17.0	32.8		25.3	20.3	29.5
Age							
15 to 24	13.9	8.6	18.8		14.2	10.8	17.2
25 to 34	28.4	20.9	35.1		27.0	25.7	28.2
35 to 44	28.4	19.2	35.8		28.7	23.8	32.8
45 to 54	27.1	16.5	35.3		26.9	18.2	33.1
55 to 64	22.8	11.7	32.5		24.6	15.8	31.2
Education							
High school or less	17.6	5.9	28.2		16.2	7.2	24.2
Postsecondary	29.4	19.6	36.0		26.4	20.0	30.5
University degree	42.1	43.6	40.5		41.2	44.4	38.1
Industry							
Retail trade, accommodation and food services	6.3	3.0	8.7		6.1	3.8	7.8
High-skill services	55.0	43.2	64.8		54.1	47.9	59.7
Public services	17.7	4.9	20.1		15.6	7.4	16.9
Other service-producing industries	15.0	5.7	31.6		14.9	6.0	28.5
Occupation							
Management	21.1	20.4	22.0		24.1	26.4	21.5
Business, finance and administrative	76.4	52.5	84.2		72.3	58.9	77.5
Natural and applied sciences and related	56.3	53.6	65.9		55.5	55.5	55.6
Social science, education, government service and religion	11.7	20.7	7.8		13.9	28.0	9.4
Art, culture, recreation and sport	17.1	16.6	17.4		21.4	16.4	26.0
Sales and service	2.0	1.5	2.3		2.3	1.6	2.7
Province							
Newfoundland and Labrador	17.8	9.4	25.1		17.4	11.0	22.5
Prince Edward Island	19.1	11.4	24.7		21.2	16.3	24.6
Nova Scotia	21.8	12.1	29.7		23.2	15.9	28.6
New Brunswick	23.0	14.8	29.5		27.0	18.7	33.4
Quebec	26.5	15.8	36.3		26.6	21.1	31.3
Ontario	27.3	20.3	33.1		26.7	22.7	29.9
Manitoba	23.7	14.3	32.0		21.9	13.5	29.4
Saskatchewan	20.5	10.4	29.3		23.3	12.4	32.8
Alberta	23.7	15.5	30.8		23.7	19.6	27.4
British Columbia	24.2	15.2	31.4		22.8	18.0	26.7
Firm size							
Less than 20 employees	22.6	10.1	31.3		22.3	11.7	29.2
20 to 99 employees	20.5	12.3	28.6		21.0	15.6	26.0
100 to 499 employees	24.3	18.8	29.5		23.5	20.7	25.9
500 or more employees	30.7	23.3	37.2		29.5	26.2	32.4
Unionized							
No	27.4	18.7	34.5		27.3	22.2	31.5
Yes	15.4	8.5	22.5		14.1	10.1	17.7
Hourly wages (2009\$)							
Less than \$10.00	8.2	3.2	10.7		8.4	5.0	10.0
\$10.00 to \$14.99	22.3	8.0	31.7		19.0	9.4	24.7
\$15.00 to \$19.99	30.4	12.5	44.7		26.4	14.7	35.2
\$20.00 to \$24.99	32.4	18.4	47.7		29.4	18.9	39.5
\$25.00 or more	39.0	34.8	46.9		37.8	35.6	41.2

Note: Private-sector employees age 15 to 64, employed outside manufacturing, primary industries and construction. Full-time students are excluded.

Source: Statistics Canada, Labour Force Survey, March and September, 1999 and 2009.

offshorable jobs as their counterparts employed in small firms (those with less than 20 employees). For women, the difference was less pronounced.

Some of the attention focused on service offshoring stems from the likelihood that many offshorable service-sector jobs are well-paid. The data support this notion. In 2009, 38% of service-sector jobs susceptible to service offshoring paid \$25.00 or more per hour (in 2009 dollars), up from 29% in 1999 (Table 2).⁸ In both years, very few of these jobs (at most 7%) paid less than \$10.00 per hour.

In 2009, two-thirds of offshorable jobs were held in business, finance and administrative occupations. Close to three-quarters were held by workers with postsecondary education or a university degree or by those employed in high-skill services. More than 90% of employees in these jobs were not unionized and about two-thirds were women.

Offshorability and wage growth

Overall, wages in offshorable service-sector jobs and in other service-sector jobs grew at a similar pace in recent years. Between 1998 and 2009, real wages in offshorable occupations and other service-producing occupations grew roughly 15% (Chart A).⁹ Notable differences in wage growth were observed only in two broad occupational groups: management occupations and natural and applied sciences and related occupations.¹⁰ In management occupations, wages in offshorable jobs grew 12 percentage points slower than in other jobs. The reverse was true in natural and applied sciences, where wage growth in offshorable jobs exceeded that in other jobs by 6 percentage points. So within broad occupational groups, wages in offshorable jobs did not systematically grow less than wages in jobs not susceptible to offshoring.¹¹

Some of the observed differences in wage growth might result from changes in workers' characteristics. For instance, workers' average labour market experience, seniority and education levels may have risen faster in some occupations than others, which could result in differing wage growth between offshorable and other jobs.

To control for the influence of these factors, multivariate analyses were conducted for each of the five occupational groups shown in Chart A. The question asked was: controlling for workers' characteristics such as age, seniority and education levels, did wages in offshorable jobs grow at the same rate as wages in other jobs?¹²

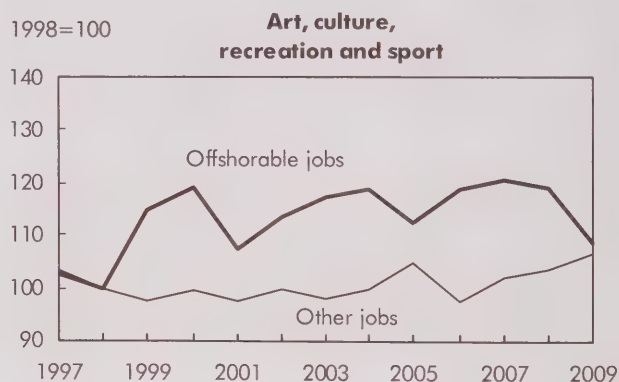
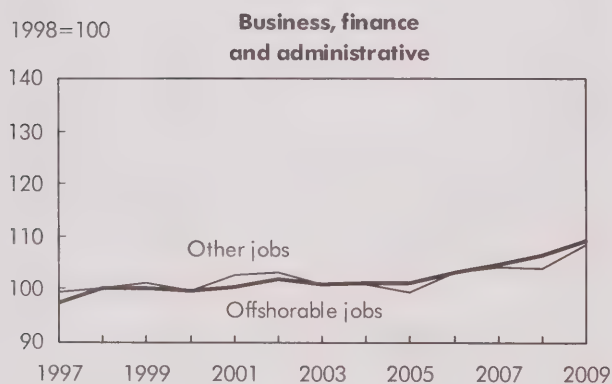
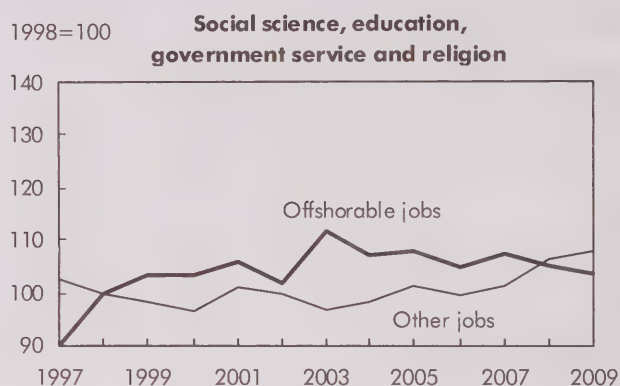
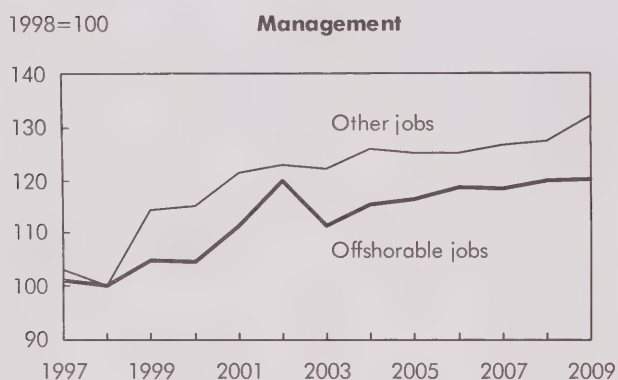
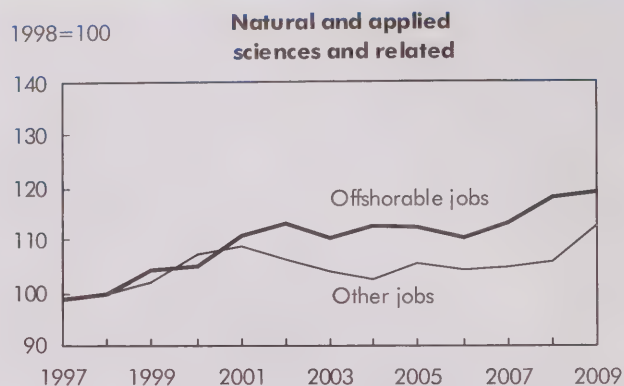
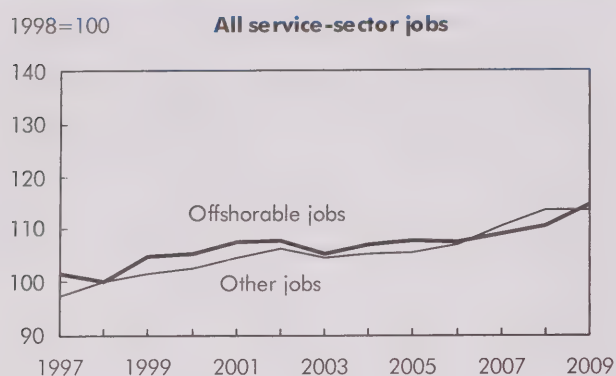
Table 2 Composition of service-sector jobs susceptible to offshoring, by various characteristics

	1999	2009
	%	
Both sexes	100.0	100.0
Men	30.5	36.1
Women	69.6	63.9
Age		
15 to 24	8.2	7.6
25 to 34	32.5	27.7
35 to 44	32.6	27.1
45 to 54	20.2	25.2
55 to 64	6.6	12.4
Education		
High school or less	34.9	27.6
Postsecondary	37.3	35.6
University degree	27.8	36.8
Industry		
Retail trade, accommodation and food services	7.8	7.4
High-skill services	70.1	71.1
Public services	7.4	7.4
Other service-producing industries	14.7	14.1
Occupation		
Management	8.6	8.7
Business, finance and administrative	69.8	66.2
Natural and applied sciences and related	15.2	16.6
Social science, education, government service and religion	2.1	3.4
Arts, culture, recreation and sport	1.7	2.1
Sales and service	2.7	3.1
Province		
Newfoundland and Labrador	0.9	0.9
Prince Edward Island	0.3	0.3
Nova Scotia	2.5	2.5
New Brunswick	2.1	2.2
Quebec	23.3	23.3
Ontario	42.1	42.3
Manitoba	3.3	2.9
Saskatchewan	2.3	2.4
Alberta	10.0	10.7
British Columbia	13.3	12.5
Firm size		
Less than 20 employees	24.9	21.2
20 to 99 employees	15.4	15.1
100 to 499 employees	13.4	13.4
500 or more employees	46.3	50.3
Unionized		
No	90.8	91.6
Yes	9.2	8.4
Hourly wages (2009\$)		
Less than \$10.00	6.5	5.0
\$10.00 to \$14.99	23.9	16.8
\$15.00 to \$19.99	23.3	24.3
\$20.00 to \$24.99	17.4	16.5
\$25.00 or more	28.9	37.5

Note: Private-sector employees age 15 to 64, employed outside manufacturing, primary industries and construction. Full-time students are excluded.

Source: Statistics Canada, Labour Force Survey, March and September, 1999 and 2009.

Chart A Offshorability and wage growth in service-sector jobs



Source: Statistics Canada, Labour Force Survey, 1997 to 2009.

Whether wages grew less among offshorable occupations than among other occupations between the 1998 to 2000 period and the most recent period (2006 to 2009) depended on the occupational group considered.¹³ Wages in offshorable jobs in natural and applied sciences occupations grew 5 percentage points faster than those in broadly comparable jobs (Table 3).^{14,15} There is no evidence of differentiated and statistically significant wage growth in other occupational groupings.

The higher wage growth among offshorable natural and applied sciences occupations may partly reflect movements of offshorable jobs across industries or firms of different sizes. If offshorable jobs in natural and applied sciences occupations became increasingly concentrated in high-paying industries or in large firms over the past decade, they would tend to exhibit stronger wage growth than other jobs as a result of this change. To assess whether wage growth in offshorable occupations located in a given industry and in firms of a given size differed from that in other comparable occupations, controls for industry and firm size were needed.¹⁶ After these controls were added, wages in offshorable jobs in natural and applied sciences occupations still grew faster than those in other broadly comparable jobs: the difference in wage growth dropped from 5 percentage points to 4 percentage points. Thus, the relatively strong wage growth observed in offshorable natural and applied sciences occupations did not result from compositional effects related to industry or firm size.

The numbers shown in Table 3 indicate that wages in offshorable and non-offshorable business,

finance and administrative occupations grew at the same pace for the periods from 1998 to 2000 and from 2006 to 2009. Yet these numbers measure average wage growth across a diverse set of occupations. Offshorable positions in business, finance and administrative occupations include both professional occupations (e.g., financial auditors and accountants, and financial and investment analysts) and clerical jobs (e.g., secretaries, data entry clerks and telephone operators) whose wages may have evolved differently over the past decade.

When offshorable business, finance and administrative occupations are disaggregated into professional and

clerical occupations, interesting patterns emerge. Compared to non-offshorable jobs in this grouping, offshorable professional occupations displayed faster wage growth (3 percentage points), while offshorable clerical occupations experienced slower wage growth (-2 percentage points) for the periods from 1998 to 2000 and from 2006 to 2009 (Table 4). The slower wage growth experienced by the clerical group is not recent: it was also observed from 1998 to 2000 and from 2001 to 2005. This implies that wages in offshorable and non-offshorable clerical occupations diverged early in the decade and then grew apace in the second half of the decade.

Table 3 Wage growth and offshorable occupations

	Controls for workers' characteristics		Full set of controls	
	β	t value	β	t value
Management				
2001 to 2005 versus 1998 to 2000	-0.01	-1.06	0.00	0.18
2006 to 2009 versus 1998 to 2000	-0.03	-1.81	-0.01	-0.83
Business, finance and administrative				
2001 to 2005 versus 1998 to 2000	-0.01	-1.74	-0.01	-1.09
2006 to 2009 versus 1998 to 2000	0.00	0.04	0.00	0.47
Natural and applied sciences and related				
2001 to 2005 versus 1998 to 2000	0.04*	2.88	0.03*	2.49
2006 to 2009 versus 1998 to 2000	0.05*	3.56	0.04*	3.25
Social science, education, government service and religion				
2001 to 2005 versus 1998 to 2000	0.01	0.55	0.01	0.40
2006 to 2009 versus 1998 to 2000	-0.03	-1.28	-0.04	-1.45
Art, culture, recreation and sport				
2001 to 2005 versus 1998 to 2000	0.00	-0.11	-0.01	-0.33
2006 to 2009 versus 1998 to 2000	0.02	0.67	0.02	0.52

* statistically significant at the 5% level

Note: Private-sector employees age 15 to 64, employed outside manufacturing, primary industries and construction, and holding a job in one of the five occupational groups shown above. Full-time students are excluded. Data from 1998 to 2009 are pooled. Separate regressions are run for each occupational group. See Multivariate models for details.

Source: Statistics Canada, Labour Force Survey, March and September, 1998 to 2009.

Table 4 Wage growth and selected offshorable occupations

	Controls for workers' characteristics		Full set of controls	
	β	t value	β	t value
Business, finance and administrative				
Offshorable clerical occupations				
2001 to 2005 versus 1998 to 2000	-0.02*	-3.09	-0.02*	-2.61
2006 to 2009 versus 1998 to 2000	-0.02*	-2.76	-0.02*	-2.27
Offshorable professional occupations				
2001 to 2005 versus 1998 to 2000	0.01	1.04	0.02	1.49
2006 to 2009 versus 1998 to 2000	0.03*	3.05	0.03*	3.01
Natural and applied sciences and related occupations, excluding mining and oil- related offshorable jobs				
2001 to 2005 versus 1998 to 2000	0.04*	2.86	0.03*	2.49
2006 to 2009 versus 1998 to 2000	0.05*	3.54	0.04*	3.25

* statistically significant at the 5% level

Note: Private-sector employees age 15 to 64, employed outside manufacturing, primary industries and construction, and holding a job in one of the two occupational groups shown above.

Full-time students are excluded. Data from 1998 to 2009 are pooled. Separate regressions are run for each occupational group. See Multivariate models for details.

Source: Statistics Canada, Labour Force Survey, March and September, 1998 to 2009.

It is possible that increases in competition from workers in emerging countries predominantly affect wages of less-skilled workers. This could happen if, say, demand for telephone operators or data entry clerks grew at a slower pace than demand for computer programmers. If so, offshorable jobs held by less-educated employees would tend to a greater degree than would be observed among highly educated workers to display slower wage growth than those held by their counterparts employed in non-offshorable positions. This might be true especially in non-unionized firms, where wage concessions from workers might be easier to obtain.

Table 5 provides limited support for this hypothesis. For the periods from 1998 to 2000 and from 2006

Multivariate models

Multivariate analyses are used to estimate whether offshorable service-sector occupations and other service-sector occupations displayed similar wage growth between the late 1990s and the late 2000s. The following wage equation is estimated using the ordinary least squares (OLS) method:

$$\ln(\text{HOURLY WAGE})_{it} = \beta_0 + \beta_1 \text{OFFSHORE}_{it} + \beta_2 \text{PERIOD_0105}_{it} + \beta_3 \text{PERIOD_0609}_{it} \\ + \beta_4 \text{OFFSHORE}_{it} * \text{PERIOD_0105}_{it} + \beta_5 \text{OFFSHORE}_{it} * \text{PERIOD_0609}_{it} \\ + \beta_6 X_{it} + \beta_7 Z_{it} + \varepsilon_{it}$$

where the dependent variable is the natural logarithm of hourly wages of worker i in year t , and where ε_{it} is an error term uncorrelated across individuals and years. Controls for workers' characteristics, X_{it} , include education, gender, a quadratic term in age and seniority, and interaction terms between gender and age, and gender and seniority, as well as province indicators. Also included are a constant term, an offshorability indicator (OFFSHORE_{it} , equal to 1 if a job is offshorable, 0 otherwise), two indicators for the periods from 2001 to 2005 and from 2006 to 2009 (PERIOD_0105_{it} and PERIOD_0609_{it}), and interaction terms between period indicators and the offshorability indicator. Apart from these variables, the full set of controls includes the following job-related characteristics, Z_{it} : 69 industry categories, 4 firm-size categories (1 to 19, 20 to 99, 100 to 499, and 500 employees or more), 10 occupation groups, union status and full-time status.

When separate analyses are conducted by education level and union status, controls for education levels and union status are omitted. In all analyses, the period from 1998 to 2000 is the reference (or omitted) period.

The numbers shown in tables 3 to 7 are the estimated values of β_4 and β_5 . They measure the degree to which wages in offshorable service-sector jobs and those in other service-sector jobs grew at a different pace between the period from 1998 to 2000 and the periods from 2001 to 2005 and from 2006 to 2009. For instance, an estimated value of 0.10 for β_4 (β_5) implies that, for the periods from 1998 to 2000 and from 2001 to 2005 (2006 to 2009), wages in offshorable service-producing occupations grew 11 percentage points faster than wages in other service-producing occupations. The 11 percentage-point figure is obtained by taking the antilog of 0.10 minus 1.

All t-values shown in tables 3 to 7 take the LFS (Labour Force Survey) complex survey design into account.

Table 5 Wage growth and offshorable occupations, by education level and union coverage

	Controls for workers' characteristics		Full set of controls	
	β	t value	β	t value
Non-unionized workers				
High school or less				
2001 to 2005 versus 1998 to 2000	-0.06*	-6.97	-0.05*	-6.04
2006 to 2009 versus 1998 to 2000	-0.06*	-6.60	-0.05*	-5.93
Some postsecondary				
2001 to 2005 versus 1998 to 2000	-0.02*	-2.67	-0.02*	-2.58
2006 to 2009 versus 1998 to 2000	-0.03*	-3.46	-0.03*	-3.18
University degree				
2001 to 2005 versus 1998 to 2000	-0.01	-0.96	-0.01	-1.22
2006 to 2009 versus 1998 to 2000	-0.01	-1.00	-0.02	-1.46
Unionized workers				
High school or less				
2001 to 2005 versus 1998 to 2000	-0.04*	-2.39	-0.03*	-1.96
2006 to 2009 versus 1998 to 2000	-0.02	-1.21	-0.01	-0.60
Some postsecondary				
2001 to 2005 versus 1998 to 2000	-0.01	-0.54	-0.01	-0.71
2006 to 2009 versus 1998 to 2000	0.01	0.34	0.00	0.12
University degree				
2001 to 2005 versus 1998 to 2000	-0.03	-1.19	-0.02	-0.86
2006 to 2009 versus 1998 to 2000	0.01	0.43	0.01	0.51

* statistically significant at the 5% level

Note: Private-sector employees age 15 to 64, employed outside manufacturing, primary industries and construction, and holding a job in one of the five occupational groups shown in Table 3. Full-time students are excluded. Data from 1998 to 2009 are pooled. Separate regressions are run for each education-union coverage cell. See Multivariate models for details.

Source: Statistics Canada, Labour Force Survey, March and September, 1998 to 2009.

to 2009, wages of workers with a high school education or less and who were employed in non-unionized offshorable jobs grew 5 to 6 percentage points less than those of their counterparts employed in non-offshorable positions. In contrast, wages of non-unionized university graduates employed in offshorable positions and those holding other jobs did not differ significantly. The same patterns were observed for 1998 to 2000 and for 2001 to 2005. This implies that among non-unionized employees with a high school education or less, offshorable jobs and other jobs displayed the same wage growth between the periods from 2001 to 2005 and from 2006 to 2009.

Another scenario is that growing competition from abroad might operate mainly by putting downward pressure on pay rates of workers at the bottom of the wage distribution. If so, wage growth in offshorable jobs would lag behind that of other jobs to a *greater degree* among low-paid positions than among better-paid positions. This hypothesis is examined in Table 6. It receives limited support from the data: for the periods from 1998 to 2000 and from 2006 to 2009, wage growth in offshorable jobs lagged behind that of other jobs to a greater extent in low-paid positions than in high-paid positions in management occupations and in business, finance and administrative

occupations, but not in natural and applied sciences occupations.¹⁷ For instance, wages in low-paid offshorable jobs in business, finance and administrative occupations grew 4 percentage points slower than wages in low-paid non-offshorable jobs. At the same time, wages in high-paid offshorable jobs in that occupational group grew 4 percentage points faster than wages in high-paid non-offshorable jobs. However, the opposite pattern is found in natural and applied sciences occupations. In other occupational groups, differences in wage growth between offshorable and non-offshorable jobs were not statistically significant.

Offshorability and wage growth among newly hired employees

Analyses that include all workers in selected sectors are not well-suited for detecting changes in the wages employers offer workers when new positions become available (as a result of quits and/or firm expansions). Analyzing the evolution of wages of newly hired employees can help identify channels through which Canadian firms may respond to growing competition within industries and from abroad. More intense competition on the product market could induce some companies to reduce their labour costs by lowering the wages offered to new hires, while maintaining or increasing wages of workers with greater seniority. Under this scenario, differences in wage growth between offshorable and non-offshorable jobs would be bigger among newly hired employees than among their counterparts with greater seniority.

Table 7 provides some mixed evidence for this hypothesis. Between the periods from 1998 to 2000 and from 2006 to 2009, wage growth in offshorable jobs appears to lag behind that of other jobs to a greater degree among newly hired employees than among other employees in management occupations and business, finance and administrative occupations. Yet the opposite pattern was observed in natural and applied sciences occupations. In other occupational groups, wage growth parameters are imprecisely estimated.

Together, the numbers presented in tables 3 to 7 highlight two facts. First, whatever potential factors are considered, wages in offshorable service-sector jobs did not grow systematically more or less than those in other service-sector positions over the past decade. Second, in some cases, offshorable jobs displayed weaker wage growth than other jobs for the periods from 1998 to 2000 and from 2001 to 2005, but similar wage growth afterwards. Since there is no clear reason why the effect of offshoring would be limited to one time period, the slower wage growth observed in some offshorable jobs from 1998 to 2000 and from 2001 to 2005 might well be driven by factors other than service offshoring.¹⁸

Conclusion

In recent years, the emergence of ICTs and the growing availability of highly skilled workers in fast-growing countries like China and India have allowed Canadian firms to move some service-sector jobs offshore. Such a change in service

Table 6 Offshorability and wage growth at the bottom and top of the wage distribution, by occupation

	Controls for workers' characteristics		Full set of controls	
	β	t value	β	t value
Management				
2001 to 2005 versus 1998 to 2000				
Bottom third	0.00	-0.19	0.00	-0.18
Top third	-0.03*	-2.97	-0.03*	-2.88
2006 to 2009 versus 1998 to 2000				
Bottom third	-0.06*	-3.58	-0.06*	-3.61
Top third	-0.04*	-3.55	-0.04*	-3.35
Business, finance and administrative				
2001 to 2005 versus 1998 to 2000				
Bottom third	-0.02*	-2.41	-0.02*	-2.67
Top third	0.02*	2.73	0.03*	3.35
2006 to 2009 versus 1998 to 2000				
Bottom third	-0.04*	-5.21	-0.04*	-5.34
Top third	0.04*	4.74	0.04*	5.32
Natural and applied sciences and related				
2001 to 2005 versus 1998 to 2000				
Bottom third	0.10*	6.26	0.09*	5.93
Top third	0.03*	2.49	0.03*	2.43
2006 to 2009 versus 1998 to 2000				
Bottom third	0.11*	6.69	0.10*	5.92
Top third	0.05*	3.75	0.04*	3.59
Social science, education, government service and religion				
2001 to 2005 versus 1998 to 2000				
Bottom third	0.06	1.75	0.06	1.84
Top third	0.06*	2.74	0.07*	3.14
2006 to 2009 versus 1998 to 2000				
Bottom third	-0.03	-0.83	-0.01	-0.39
Top third	0.02	1.04	0.03	1.20
Art, culture, recreation and sport				
2001 to 2005 versus 1998 to 2000				
Bottom third	-0.02	-0.95	-0.03	-1.32
Top third	0.02	0.83	0.02	0.78
2006 to 2009 versus 1998 to 2000				
Bottom third	-0.02	-0.63	0.01	0.32
Top third	0.01	0.31	-0.01	-0.46

* statistically significant at the 5% level

Note: Private-sector employees age 15 to 64, employed outside manufacturing, primary industries and construction, and holding a job in one of the five occupational groups shown above. Full-time students are excluded. Data from 1998 to 2009 are pooled. Separate regressions are run for each occupation-tier cell. See Multivariate models for details.

Source: Statistics Canada, Labour Force Survey, March and September, 1998 to 2009.

Table 7 Offshorability and wage growth, by seniority and occupation

	Controls for workers' characteristics		Full set of controls	
	β	t value	β	t value
Management				
2001 to 2005 versus 1998 to 2000				
Newly hired employees	-0.02	-0.62	-0.01	-0.49
Other employees	-0.01	-0.50	0.01	0.77
2006 to 2009 versus 1998 to 2000				
Newly hired employees	-0.05	-1.64	-0.04	-1.16
Other employees	-0.02	-1.00	0.00	-0.12
Business, finance and administrative				
2001 to 2005 versus 1998 to 2000				
Newly hired employees	-0.04*	-2.98	-0.03*	-2.53
Other employees	0.00	0.29	0.01	0.89
2006 to 2009 versus 1998 to 2000				
Newly hired employees	-0.04*	-2.74	-0.03*	-2.31
Other employees	0.02*	2.27	0.02*	2.58
Natural and applied sciences and related				
2001 to 2005 versus 1998 to 2000				
Newly hired employees	0.10*	4.67	0.09*	4.17
Other employees	-0.01	-0.43	-0.01	-0.58
2006 to 2009 versus 1998 to 2000				
Newly hired employees	0.10*	4.66	0.09*	4.13
Other employees	0.01	0.47	0.01	0.41
Social science, education, government service and religion				
2001 to 2005 versus 1998 to 2000				
Newly hired employees	0.02	0.45	0.00	-0.05
Other employees	0.01	0.29	0.02	0.54
2006 to 2009 versus 1998 to 2000				
Newly hired employees	-0.04	-0.84	-0.04	-0.98
Other employees	-0.03	-1.03	-0.03	-0.81
Art, culture, recreation and sport				
2001 to 2005 versus 1998 to 2000				
Newly hired employees	-0.01	-0.22	-0.01	-0.26
Other employees	-0.01	-0.32	-0.01	-0.37
2006 to 2009 versus 1998 to 2000				
Newly hired employees	0.05	1.04	0.01	0.25
Other employees	0.00	0.03	0.03	0.73

* statistically significant at the 5% level

Notes: Private-sector employees age 15 to 64, employed outside manufacturing, primary industries and construction, and holding a job in one of the five occupational groups shown above. Full-time students are excluded. Data from 1998 to 2009 are pooled. Separate regressions are run for each occupation-seniority cell. See Multivariate models for details.

Newly hired employees are those with less than 2 years of seniority in the company.

Source: Statistics Canada, Labour Force Survey, March and September, 1998 to 2009.

employment patterns could affect wages and wage growth in offshorable jobs.

This article examined whether offshorable service-sector occupations have displayed similar wage growth to comparable occupations since the late 1990s. It found no evidence that wages in offshorable service-producing occupations grew systematically less than those in other occupations. Some offshorable occupations, namely those involving clerical work, exhibited weaker wage growth while those in natural and applied sciences occupations displayed stronger wage growth than broadly comparable non-offshorable occupations.

These results suggest that if service offshoring has affected wages of Canadian workers so far, the impact is unlikely to have been uniform across occupations. To test this hypothesis, subsequent research should link Canadian trade data on imports and exports of services and commodities to worker-level wage data from the Labour Force Survey. Such a link would enable an empirical evaluation of the assumed offshorability of jobs, as well as the associated wage effects of offshoring or inshoring.

Perspectives

Notes

1. Evidence that Canadian firms started contracting out some service-producing jobs to non-OECD countries like China and India can be found in data produced by Statistics Canada's Balance of Payments Division. These data consist of a series of business surveys that measure the imports and exports of commercial services and contain

information about 48 types of commercial services (e.g., telecommunications, accounting, architectural and engineering services, and information-related services). Statistics can be broken down by industry and by country of origin or destination, thereby allowing analysts to distinguish imports from OECD countries from those originating from non-OECD countries like China and India. Morissette and Johnson (2007) use these data and find that, in 2004, imports of computer, information and other business services (such as management services, advertising and related services, research and development, architectural, engineering, and other technical services) from non-OECD countries amounted to roughly \$1 billion, compared to \$17 billion for those from OECD countries.

2. The net effect of offshoring on employment need not be negative. One reason is that domestic firms might reduce their production costs by offshoring low-skilled tasks, which in turn might increase their profit-maximizing output and increase the demand for (and employment of) some types of workers (Cheung et al. 2008). Morissette and Johnson (2007) use several data sets to examine the relationship between service offshoring and employment. They find little evidence of a correlation between service offshoring and the evolution of employment and layoff rates.
3. So far, the discussion has been framed solely in terms of imports of services. However, exports of services (termed inshoring by Liu and Trefler [2008]) are another factor that may stimulate demand for some types of workers and thus increase wages.
4. The private sector includes all self-employed workers and business owners and all employees except those in public administration at the federal, provincial, territorial, municipal, First Nations and other Aboriginal levels as well as in Crown corporations, liquor control boards, and other government institutions such as schools (including universities), hospitals and public libraries.
5. For instance, the “computer operators” category, used by van Welsum and Reif (2005), is replaced by “computer and network operators and web technicians.”
6. About 1.4 million and 1.7 million service-sector jobs were subject to offshoring in 1999 and 2009, respectively. In both years, they accounted for about 21% of all paid jobs in the economy. Although they refer to offshorable jobs in the service sector only, these estimates are in line with those of Blinder (2009) who, when combining the goods sector and the service sector, estimates that between 22% and 29% of all paid jobs in the United States were potentially offshorable in 2004.
7. Since the sample used in tables 1 and 2 consists of private-sector employees (15 to 64, who are not full-time students, and who are employed outside manufacturing, primary industries and construction), readers might wonder why numbers for public services are shown in these tables. The reason is that some workers, e.g., nurses in privately owned residences for seniors, are private-sector employees operating in sub-sectors (e.g., health) of public services.
8. Multivariate analyses indicate that close to one-half of the increase (from 29% to 38%) observed between 1999 and 2009 is due to the growing proportion of offshorable jobs held by older and highly educated workers.
9. Although the wage data used in this article start in 1997, information on firm size is available only starting in 1998. Since firm size is subsequently used as a control variable in multivariate analyses of wage growth, the focus in this section is on wage growth between 1998 and 2009.
10. Since they account for less than 2% of jobs in sales and service occupations (group G), offshorable jobs held by insurance agents and brokers are not considered in the remainder of the article.
11. Chart A also shows relatively high wage volatility among offshorable jobs in social science and art, culture, recreation and sport. Part of it might be related to the relatively small sample sizes for these jobs.
12. Calendar years are grouped into three periods to increase the precision of the estimates. The initial period starts with the year 1998 since subsequent multivariate analyses require controlling for firm size, a variable for which data are not available in the LFS prior to 1998. Workers’ characteristics also include control for gender and province (see *Multivariate models*).
13. The same conclusion is obtained when wage growth is measured between the periods from 1998 to 2000 and from 2006 to 2008.
14. Differences in wage growth, measured in percentage points, are obtained by taking the antilog of the coefficients shown in tables 3 to 7, minus one.
15. The difference is statistically significant at the 1% level (two-tailed test).
16. Conversely, if movements of offshorable jobs across industries or companies of different sizes actually result from factors related to offshoring, controls for industry and firm size are best avoided.
17. For each year, occupational group and value of the offshorability indicator (1 for offshorable jobs, 0 otherwise), jobs in the bottom (top) third of the (cell-specific) wage distribution are selected. Data for the years from 1998 to 2009 are pooled. For each occupational group and each tier, separate regression models are estimated as described in *Multivariate models*.

18. For instance, if labour-saving technological changes were more prominent among offshorable jobs held by non-unionized low-educated workers than other jobs held by their counterparts, wages could grow less among the former group than the latter, thereby potentially accounting for the slower wage growth observed among the former group between 1998 and 2000 and 2001 and 2005.

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Temporary employment in the downturn

Diane Galarneau

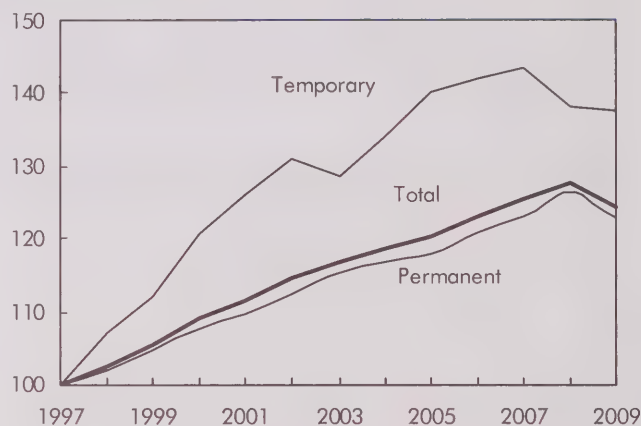
In 2009, 1.8 million Canadians, or 1 in 8 paid workers, had some form of temporary employment. This type of employment, whether in the form of contract positions, seasonal work or casual jobs, grew rapidly from 1997 to 2005 (Chart A). That increase raised fears of a deterioration in employment conditions for a segment of the population, since temporary jobs, on average, pay lower wages and provide fewer benefits than permanent jobs. They are also unionized less often and part-time more often than permanent jobs (Galarneau 2005, Kapsalis and Tourigny 2004, OECD 2002, Schellenberg and Clark 1996, and Krahn 1995).

According to Kapsalis and Tourigny (2004), these temporary jobs are more likely to be interspersed with periods of unemployment, often without employment insurance because of short employment durations and the low number of hours worked. Temporary job holders may therefore experience periods of economic instability, which may be lengthy if they go from one temporary job to another. This type of employment can also make it more difficult to build up retirement funds since these employees often have lower wages and are covered by pension plans less often.

On the other hand, temporary employment may suit some workers looking for more flexibility in order to achieve a better work-life balance, such as students, parents of young children and older workers. In general, temporary employees are as satisfied with their jobs as permanent employees (General Social Survey, Cycle 20, 2006¹). Temporary jobs can sometimes be a foot in the labour market door for persons with no recent experience or no experience in Canada. These short-term jobs are a means to maintain acquired skills and even acquire new ones. They are also sometimes a springboard to 'better' jobs, since they can facilitate access to permanent positions (OECD 2002, and Kapsalis and Tourigny 2004).

Chart A Temporary employment grew more rapidly than permanent employment

Index (1997=100)



Source: Statistics Canada, Labour Force Survey, 1997 to 2009.

For employers, the use of temporary labour makes it possible to adjust to fluctuations in demand more quickly, increasing companies' flexibility. This enables them to reduce their wage costs and hiring expenses since the most productive employees can be selected for permanent jobs later (Kalleberg 2000). The use of temporary employment can therefore improve companies' competitiveness.

The increase in temporary work began slowing in 2006—this type of employment registered a decrease even before the drop in total employment. This article tracks the trends in temporary employment from 1997 to 2009, with particular attention to the recent economic downturn. It examines the different types of

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temporary jobs, their main industries and how they fared in the recent employment slowdown. It also provides a brief profile of the persons with temporary jobs and some of their job characteristics, and it examines the earnings gap between temporary and permanent jobs and whether that gap changed during the recent employment downturn.

Decrease followed strong growth

From 1997 to 2005, the annual growth of temporary employment generally exceeded that of permanent employment. As a result, the proportion of paid jobs consisting of temporary employment rose slightly, going from 11.3% to 13.2% (Table 1). Except for 2003, the contribution of temporary work to the growth of paid employment ranged between 19% and 46%, far exceeding its relative weight.

A number of factors may be related to the rise in temporary work. For example, globalization, the expansion of international trade and the resulting increase in competition may have led some companies to resort to this type of job to remain competitive (Kalleberg 2000, Morissette and Johnson 2005, and Morissette and Picot 2005). In addition, technological changes have made it possible to quickly access precise information on input and labour needs and surpluses, making it easier for employers to use temporary labour (Kalleberg 2000). Labour laws intended to protect workers may have encouraged companies seeking to avoid the costs associated with permanent positions to resort to temporary employees (Lee 1996, and Cappelli et al. 1997).

Lastly, changes in the composition of the labour force, such as the increased participation of women with children, an aging workforce (Pfeffer and Baron 1988) and, more recently, the increased number of immigrants, may have changed workers' preferences and contributed to the rise in temporary employment.

Starting in 2006, the situation changed and the growth of temporary employment slowed, as did its contribution to the growth of overall employment. This slowdown, even before the slowdown of permanent employment, coincided with a dynamic labour market. Of all the persons with non-standard positions (temporary, part-time, self-employed), full-time temporary employees have the greatest chances of eventually acquiring a permanent position (Kapsalis and Tourigny 2004). This transition may be even

stronger in periods characterized by job growth and low unemployment. This might in part explain the slower growth of temporary employment and the faster growth of permanent employment in 2006 and 2007.

Between 2007 and 2009, temporary employment declined by more than 4%, leading to a decrease in its share of paid employment, which fell to 12.2% in 2008. The slight upturn to 12.5% in 2009 occurred due to a greater decrease in permanent employment.

Contract employment led the increase until 2005

The LFS divides temporary jobs into three categories: term or contract jobs, seasonal jobs and casual jobs (see *Data source and definitions*).

Term or contract employees are usually hired for short periods and do not return to the same employer

Table 1 Indicators of growth in temporary and permanent employment

	Permanent employment	Temporary employment	Temporary employment as proportion of paid employment	Annual change	
				Permanent employment	Temporary employment
	'000		%	%	
1997	10,073	1,284	11.3	...	...
1998	10,266	1,375	11.8	1.9	7.0
1999	10,535	1,439	12.0	2.6	4.7
2000	10,843	1,548	12.5	2.9	7.6
2001	11,050	1,620	12.8	1.9	4.7
2002	11,315	1,681	12.9	2.4	3.8
2003	11,619	1,651	12.4	2.7	-1.8
2004	11,772	1,721	12.8	1.3	4.2
2005	11,861	1,798	13.2	0.7	4.4
2006	12,163	1,823	13.0	2.6	1.4
2007	12,409	1,843	12.9	2.0	1.1
2008	12,721	1,775	12.2	2.5	-3.7
2009	12,381	1,766	12.5	-2.7	-0.5

Source: Statistics Canada, Labour Force Survey, 1997 to 2009.

Data source and definitions

This article is based on the Labour Force Survey (LFS), a monthly survey of approximately 54,000 households. The LFS provides information on general labour market trends by industry and occupation, hours worked, participation rate and unemployment rate. Since January 1997, the LFS has classified paid jobs as either permanent or temporary, based on employer intentions and job characteristics. If a job that was considered permanent is ending due to downsizing or closure, it is still considered permanent. This study excludes self-employed workers since only employees can have temporary jobs. The LFS includes information on the characteristics of the persons with temporary jobs and on their jobs (e.g., unionization, hours worked, occupation and industry). However, information on non-wage benefits is not available.

A **permanent job** is one that is expected to last as long as the employee wants the job and as long as business conditions permit. In other words, the employer does not state that the job will end on a specific date in the near future when the employee is hired. Permanent jobs are sometimes described as jobs for an indeterminate period, since there is no predetermined date for the job to end.

A **temporary job** has a predetermined end date or will end as soon as a specific project is completed. The employer makes it clear that the job will end on a specified date in the near future when the employee is hired. Temporary jobs are sometimes described as term positions, since they last only for a period, a duration or a specific project. In the LFS, there are four types of temporary jobs: seasonal; temporary and contract; casual; and other, when none of the preceding categories is appropriate.

A job is **seasonal** if the employee is working in an industry where employment levels rise or fall with the seasons (e.g., agriculture, fishing, logging and tourism).

A job is **contract** if it is for a fixed period but is not seasonal and if the employer makes it clearly understood, before the employee accepts the job, that the job will end on a specific date or following the completion of some work or a particular project. In the LFS, these jobs are also called temporary, but in this article they are identified as contract

jobs to distinguish them from other temporary jobs.

A job is **casual** if the employee's work hours vary substantially from one week to the next, if the employee is called to work by the employer when the need arises and not on a pre-arranged schedule, or if the employee does not usually get paid for time not worked and there is no indication from the employer about work on a regular basis for a long duration. In this article, casual jobs and the other types of temporary jobs have been combined because of their relatively small number.

In the past, the LFS also distinguished temporary jobs obtained through an employment agency. However, this category of temporary jobs was often confused with contract jobs. Starting in January 2007, this temporary employment category was removed from the LFS. After that date, these jobs were added to the "term or contract" category.

The **gap in hourly earnings** is calculated by subtracting the average hourly earnings of temporary employees from those of permanent employees. The result is divided by the average hourly earnings of permanent employees and multiplied by 100 to obtain a percentage value.

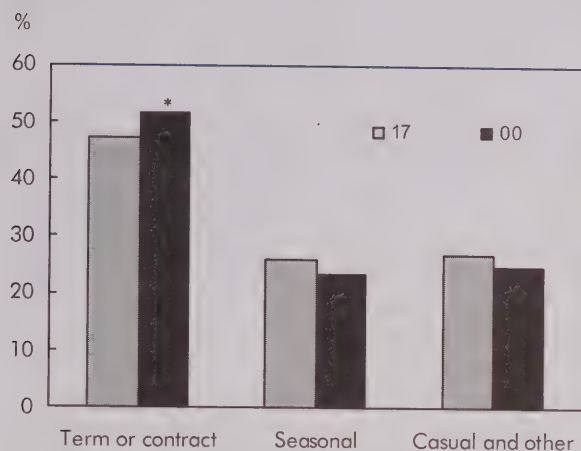
Adjusted earnings gaps are shown in Table 7 and come from a linear regression model estimating the log of hourly earnings. Since men's and women's earnings are different, separate models were estimated for each sex. These models were estimated in three steps to take account of demographic characteristics (age, education level, province, size of the region of residence, family situation, and student status; job characteristics (e.g., unionization, work arrangements [full time/part time] and company size); and industry and occupation. Since part of the gap could also be attributable to the lower seniority of temporary employees, this variable was added to the model. Inclusion of the "job duration" and "job duration squared" variable reduces the adjusted earnings gap by several additional percentage points—by 1 to 2 for men and by 3 to 5 for women.

The models were estimated for 1997, 2005 and 2009.

on a seasonal basis. When they are hired, these workers know the end date of their contracts. More than one-quarter of them are professionals (compared to 15% of permanent employees). Companies may turn to this type of worker to respond to sudden increases in demand, have access to skills that do not exist within the company (e.g., the services of professionals like engineering consultants, and surveillance, cleaning and food preparation services) or avoid hiring employees on a permanent basis with the attendant costs (Holmes

1986, and Abraham and Taylor 1996). Contract employees most often work in teaching occupations, as clerks and receptionists or in health care occupations.

Contract positions account for the majority of temporary jobs (Chart B), and their share increased between 1997 and 2009, from 47% to 52%.² During the years of high growth in temporary employment from 1997 to 2005, contract positions led the way, increasing by an average of more than 5% annually (Table 2).

Chart B Contract jobs largest category of temporary jobs

* Increase in the proportion of contract jobs is statistically significant at the 5% threshold.

Source: Statistics Canada, Labour Force Survey, 1997 and 2009.

Seasonal employees accounted for nearly one-quarter of all temporary workers in 2009, down slightly from 1997. A large proportion of them had occupations related to the seasonal fishing, agriculture and construction industries.³ Seasonal employees are also in retail trade (salespersons and cashiers) and tourism (tour guides, servers, cooks and amusement park and holiday camp workers).

Some regions have a larger share of seasonal jobs because their employment is more concentrated in fishing, forestry and agriculture. These regions experience sizeable variations in workers' earnings during the year, workers maintaining their skills during repeated periods of unemployment, and some

dependence on government transfers. In recent decades, these regions have been affected by the decline of traditional seasonal industries and are often faced with a limited supply of jobs in other sectors (Sharpe and Smith 2005).

Employees who work only when the employer needs them are known as casual employees. These individuals are sometimes referred to as "spares," "relief workers" or "fill-ins" (Statistics Canada 2005). Companies use this type of labour to replace absent employees, respond to seasonal variations (e.g., holiday shopping) or sudden increases in demand. Many of these employees are supply or spare (substitute) teachers, nurses or hospital workers, catering company employees, domestic maintenance workers or receptionists.

Other types of temporary employees⁴ include those who do not fit into any of these categories, but who do not have permanent paid employment. The "other" category is marginal, accounting for less than 1% of all temporary employees, and it has been combined with casual employees for the purposes of this article.

Table 2 Trends in employment by type

	Permanent	Temporary	Term or contract	Seasonal	Casual and other
	'000				
1997	10,073	1,284	588	323	373
2005	11,861	1,798	874	427	497
2006	12,163	1,823	896	431	496
2007	12,409	1,843	935	417	491
2008	12,721	1,775	899	416	459
2009	12,381	1,766	908	413	445
Annual growth rate	%				
1997 to 2005	2.1	4.3	5.1	3.6	3.8
2005 to 2009	1.1	-0.4	1.0	-0.8	-2.7
2005 and 2006	2.6	1.4	2.5	0.9	-0.1
2006 and 2007	2.0	1.1	4.4	-3.2	-1.0
2007 and 2008	2.5	-3.7	-3.9	-0.2	-6.5
2008 and 2009	-2.7	-0.5	1.0	-0.7	-3.1

Source: Statistics Canada, Labour Force Survey, 1997 to 2009.

From 1997 to 2005, the annual growth rates for seasonal and casual jobs were lower than for contract positions on average, although they were higher than for permanent jobs.

Slowed growth from 2005 to 2009

From 2005 to 2009, the average annual growth rate for all types of jobs declined to 1.1% for permanent jobs and to -0.4% for temporary jobs. During these years, only contract jobs stayed in positive territory, increasing by nearly 4% from 2005 to 2009. Seasonal jobs registered declines in three out of four years and a net loss of more than 3%, the equivalent of 14,000 jobs between 2005 and 2009, while casual employment registered four years of decline and a total loss of more than 10%, or 51,000 jobs.

Key industries shaped variations in temporary employment

From 2005 to 2009, some industries registered sizeable variations in employment. For example, this period coincided with the downturn in manufactur-

ing, which affected all job types. In 2008, the global decline in employment also mainly affected the goods-producing sector, including manufacturing, mining, forestry, construction and trade, while the public sector came through relatively well (Usalcas 2010). These variations also had an impact on temporary employment.

Contract employment increased between 2005 and 2009, despite the general downturn in employment. In comparison with permanent jobs and other types of temporary employment, contract positions are much more concentrated in public-sector industries such as educational, health care and social services, and public administration (Table 3). These industries were relatively untouched by the employment downturn in late 2008. The decline in other industries and the maintenance of jobs in its main industries helped contract work strengthen its share of employment within its core industries growing from 41% to 43%⁵ during this period.

Table 3 Employment by type of industry

	Employment					Casual and other
	Total paid employment	Permanent	Temporary	Contract	Seasonal	
				'000		
All types	15,913	12,381	1,766	908	413	445
				%		
Public	25	23	31	40	15	29
Private	75	77	69	60	85	71
Primary	3	3	4	2	12	2
Utilities	1	1	1	1	1	F
Construction	6	5	8	6	19	3
Manufacturing	12	13	6	6	7	4
Trade	17	17	12	9	9	22
Transportation and warehousing	5	5	3	2	6	3
Information and cultural	5	4	7	5	15	5
Finance, insurance, real estate and leasing	6	7	3	4	1	3
Professional, scientific and technical	6	6	4	5	2	2
Management, administrative and support services	3	3	5	5	7	4
Educational services	8	7	15	22	5	11
Health care and social assistance	12	12	11	12	2	20
Accommodation and food services	7	7	9	5	9	15
Other services	4	4	3	4	2	3
Public administration	7	7	7	10	5	3

Source: Statistics Canada, Labour Force Survey, 2009.

In 2005, seasonal employment was concentrated in five industries: construction (17%), primary industries⁶ (14%), information and culture⁷ (13%), manufacturing⁸ (11%), and accommodation and food services (9%). From 2005 to 2009, seasonal employment declined more than 3%, mainly due to a 23% drop in the primary sector that hit the fishing and forestry industries, but also because of the general decline in the manufacturing, accommodation and food services industries. The decline in primary industries and accommodation and food services was confined to seasonal employment, with these industries maintaining their shares of paid employment during this period.

The construction and information and culture industries registered seasonal employment gains of 8% and 10% respectively (as well as gains in permanent employment, increasing their shares). The 2008 decline in construction was thus more than offset by gains over the period as a whole. These gains, combined with the declines in the primary and manufacturing industries, enabled the construction share of seasonal employment to increase to 19%, and information and culture to 15%.⁹ As a result, construction remained the top industry for seasonal employment, while the information and culture industry overtook the primary industry for second place.

Employees occupying casual positions are mainly in retail and wholesale trade, educational services and health care, as well as accommodation and food services. This type of employment has declined by more than 10% since 2005, with losses affecting most industries.

Lengthening employment spells

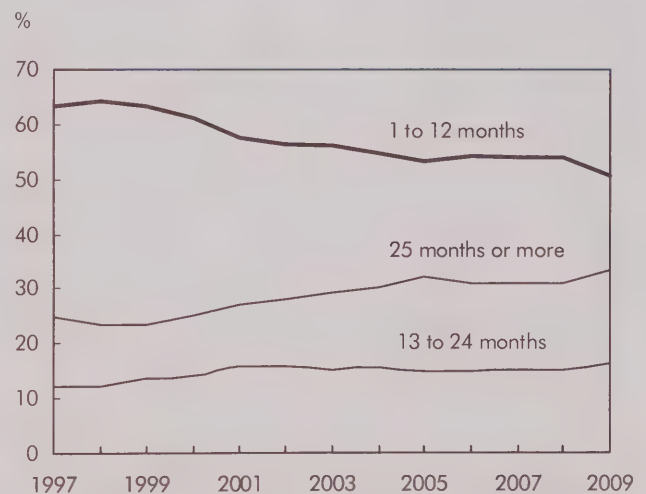
The LFS does not measure the complete duration of jobs—a longitudinal survey is required to obtain a reliable measurement. However, the LFS provides information on the duration of ‘in-progress’ jobs at the time of the survey. The duration of employment is, by definition, shorter for temporary jobs than permanent jobs. However, it has lengthened slightly since the LFS began collecting information on this type of job. In 1997, nearly two-thirds of temporary employees had held their jobs for less than one year at the time of the survey, whereas in 2009, this was so for only one-half of temporary employees (Chart C). The lengthening of in-progress job durations was gradual until 2005, when the proportion of temporary jobs

peaked. After pausing from 2005 to 2008, the trend resumed in 2009. This turnaround was seen in all types of temporary jobs. The number of positions held for very short periods (from one to three months and from four to six months) declined in favour of positions held for more than two years.

The lengthening of employment spells is probably underestimated since the measured lengths are incomplete. All told, the lengthening was observed for men and women, across all age groups and education levels.

The change over time in the distribution of in-progress employment durations is generally difficult to interpret (Heisz 2002). It depends on the employment durations of currently employed individuals and the level of inflows (new employees). The proportion of long employment spells tends to diminish during growth periods, since more workers are entering the labour force at that time, with newly filled jobs increasing the relative weight of short employment spells. Conversely, during slowdowns the proportion of long employment spells tends to increase since the last hired are often the first to lose their jobs.

Chart C Lengthening in-progress periods of employment¹



1. The decrease in the proportion of job durations of 1 to 12 months is statistically significant at the 5% threshold.

Source: Statistics Canada, Labour Force Survey, 1997 to 2009.

Temporary help agencies

Temporary help agencies act as intermediaries between workers and employers. They recruit, hire and train employees whose services they 'rent' to other companies on a temporary basis. They are official employers, paying wages to their employees and claiming the usual income deductions from the appropriate government agencies and departments (Hamdani 1997). This type of company has shown substantial growth since 1993, when Statistics Canada began collecting information on this subject. According to the Survey of Service Industries, these companies generated operating revenues of \$9.2 billion in 2008, up from \$1.0 billion in 1993. They provide personnel in fields such as administrative and office services, professional and computer services, health and unskilled work (Statistics Canada 2010).

Agencies of this type are also proliferating in the United States and Europe (Kalleberg 2000). The increase is due to factors on both the demand side (companies needing to meet their production requirements) and the supply side (changes in the composition of the labour force).

Before January 2007, employees hired through help agencies also constituted a separate temporary job category in the LFS. However, this category was often confused with contract jobs and was therefore removed from the survey. Although the number of agency-hired employees in Canada is probably also increasing, there is no reliable information on numbers to date (it has been included in the "other" category for the purposes of this article).

The increase in the proportion of employment durations of 25 months or more occurred during a period of growth in temporary jobs (from 1997 to 2005) and might be explained by a lengthening of temporary contracts or a change in hiring practices. The relative stability from 2005 to 2008 and the weak resumption of the upward trend in 2009 might be due to a decrease in hirings, which would likely increase the relative weight of average durations of 25 months or more.

Temporary jobs traditionally held by younger persons

In general, temporary jobs are held by women, younger persons and relatively less-educated workers most often (Table 4).¹⁰ Since temporary workers are relatively young, they also live in couple relationships less often. While these characteristics apply to temporary workers overall, there are some differences across types of temporary employment. For example, seasonal workers are mainly men, and contract workers are mainly more highly educated than their counterparts with permanent jobs. A sizeable proportion of seasonal (42%) and casual (47%) employees were under 25 years of age, with many being students.

Temporary workers, mainly in seasonal jobs, were most likely to be found outside of census metropolitan areas (CMAs). On the other hand, contract workers were more likely to be located in large CMAs.

During the study period, the distribution of temporary employees according to various demographic characteristics remained relatively stable.

Fewer hours

In comparison with permanent jobs, temporary jobs are part-time more often, mainly in companies with less than 20 employees, and slightly less unionized (Table 5).¹¹ However, there are differences across types of temporary employment. For example, contract jobs are as likely to be unionized as permanent jobs and are in companies of comparable size. On the other hand, seasonal and casual jobs are concentrated in small companies (with less than 20 employees). Seasonal jobs are less unionized (19% versus 32% for permanent jobs), while casual workers are unionized almost as often as permanent employees because they are concentrated in the public sector (educational services, health care and social assistance).

All types of temporary jobs are less likely to be full-time than permanent jobs. Among men, 91% of permanent employees were full-time, compared to 69% of temporary employees. The corresponding proportions among women were 78% and 52% respectively.

This pattern varies by type of temporary employment, with casual jobs the most likely to be part-time, followed by contract jobs. Among men with seasonal jobs, 80% were employed full time, the highest proportion for temporary workers. Seasonal workers are

Table 4 Demographic characteristics of temporary and permanent workers

	Worker				Casual and other
	Permanent	Temporary	Contract	Seasonal	
All	12,381	1,766	908	413	445
			'000		
			%		
Men	49.9	48.2	45.7	64.0	38.6
Women	50.1	51.8	54.3	36.0	61.4
Age					
15 to 19	4.8	16.7	9.9	21.3	26.4
20 to 24	8.9	20.2	19.5	21.4	20.6
25 to 34	23.1	21.8	28.2	14.7	15.1
35 to 44	23.6	15.3	18.4	13.0	11.3
45 to 54	25.4	13.8	13.6	16.1	12.2
55 to 64	12.8	9.4	8.5	10.2	10.4
65 and over	1.5	2.8	1.9	3.2	4.1
Education					
Less than a high school diploma	10.7	16.6	9.1	26.5	22.7
High school diploma	20.4	18.3	15.0	24.5	19.1
Postsecondary certificate or diploma	44.5	41.5	41.0	41.6	42.4
University degree	24.4	23.7	34.9	7.5	15.7
Family type					
In couple relationship	63.5	44.6	48.8	41.7	38.7
Separated or divorced	8.8	6.0	5.9	5.9	6.3
Single	27.7	49.4	45.3	52.4	55.0
Province					
Newfoundland and Labrador	1.2	2.7	2.4	4.0	2.2
Prince Edward Island	0.4	0.8	0.5	1.5	0.6
Nova Scotia	2.6	3.7	2.8	5.1	4.1
New Brunswick	2.2	3.1	2.4	4.6	3.2
Quebec	23.1	23.9	26.7	22.7	19.4
Ontario	39.1	37.5	39.1	36.0	35.8
Manitoba	3.7	3.5	3.0	3.7	4.3
Alberta	3.0	2.9	2.3	3.2	4.1
Saskatchewan	11.9	9.4	9.1	9.0	10.4
British Columbia	12.9	12.4	11.7	10.3	16.0
Census metropolitan area (CMA)					
Montréal	11.4	10.6	13.7	7.1	7.6
Ottawa	3.0	3.3	4.2	1.8	2.7
Toronto	17.2	15.9	17.5	12.7	15.8
Calgary	4.3	2.9	3.0	2.5	3.0
Vancouver	7.1	6.7	7.1	4.1	8.2
Other CMA	36.0	36.1	36.6	33.5	37.3
Non-CMA area	21.0	24.5	17.8	38.2	25.6
Recent immigrant¹	3.4	4.3	2.0	5.8	4.1

1. Arrived in Canada after 2000.

Source: Statistics Canada, Labour Force Survey, 2009.

Table 5 Characteristics of jobs held by temporary and permanent workers

	Worker				
	Permanent	Temporary	Contract	Seasonal	Casual and other
All	12,381	1,766	908	413	445
Full-time work arrangement					
			'000		
Men	91	69	75	80	36
Women	78	52	62	61	27
Unionization					
Yes	32	29	34	19	30
No	68	71	66	81	70
Size of company					
Less than 20 employees	32	40	34	51	43
20 to 99 employees	34	32	31	33	33
100 to 500 employees	21	16	19	12	13
More than 500 employees	13	12	16	4	12
Occupation					
Management	8	2	3	1	1
Business, finance and administration	20	14	19	6	12
Natural and applied sciences	8	5	7	3	2
Health	7	6	5	0	11
Social sciences, education, public administration	9	16	24	3	10
Arts, culture, sports and recreation	2	5	5	7	3
Sales and services	25	28	20	26	47
Trades, transport and equipment operators	14	16	12	31	9
Unique to primary industry	1	5	1	17	2
Processing, manufacturing and utilities	6	4	4	5	3
Average usual hours of work					
			hours		
Men	38	33	34	37	23
Women	34	27	30	30	20

Source: Statistics Canada, Labour Force Survey, 2009.

also more likely than permanent employees to have long hours of work: 21% worked an average of 50 hours or more per week, compared to 7% of permanent workers (Chart D). Among women, seasonal workers and contract workers are equally likely to work part time.

The average number of hours worked per week for men and women with temporary jobs was 33 hours and 27 hours respectively, compared to 38 hours and 34 hours for permanent employees. The largest gap was for casual employees—it varied according to age, the youngest having the largest gaps. When temporary employment peaked between 2005 and 2009,

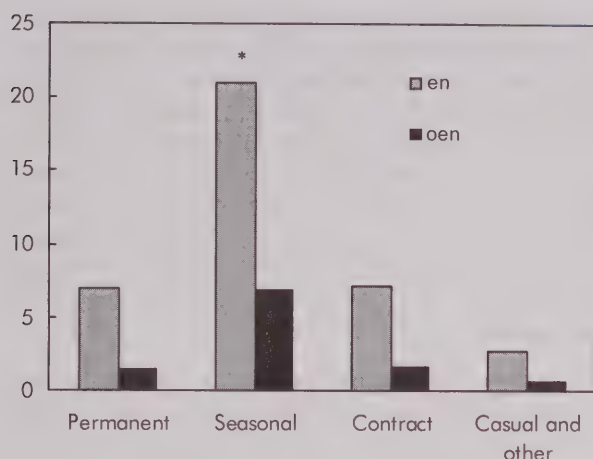
average usual hours declined a little more than 1%.¹² The decrease affected both permanent and temporary workers. On an annual basis, such a decrease represents more than 25 hours for permanent employees and approximately 18 hours for temporary employees.

Earnings gap steady

Whether the share of seasonal employment was at its highest level (2005) or nearing a low (2009), the earnings gap between permanent and temporary employees held steady (Table 6). Since information on temporary employment began being collected, the gap

Chart D Male seasonal workers more likely to work long hours

Proportion working 50 hours or more per week (%)



* Difference between men with seasonal and permanent jobs is statistically significant at the 5% threshold.

Source: Statistics Canada, Labour Force Survey, 2009.

in hourly earnings between permanent employees and seasonal employees has been 34%, while it has ranged between 12% and 14% for contract employees and between 32% and 36% for casual employees.

Table 6 Average hourly earnings rate and gap between permanent and temporary jobs

	Job			
	Permanent	Contract	Seasonal	Casual and other
	\$			
1997	20.21	17.76	13.43	13.71
2005	19.73	17.06	13.09	12.68
2009	22.71	19.61	14.98	15.31
	%			
Gap				
1997	...	-12	-34	-32
2005	...	-14	-34	-36
2009	...	-14	-34	-33

Source: Statistics Canada, Labour Force Survey, 1997, 2005 and 2009.

These gaps may have resulted from differences in the demographic characteristics of permanent and temporary workers such as sex, age, education level, student status, immigrant status and province of residence. When adjustments were made for these differences¹³ (Table 7), the gap narrowed for all types of temporary employment and ranged between 5% and 21%. Contract employees (men and women) registered the narrowest gaps. The widest gaps among men were for casual workers, and among women, for seasonal workers.

Table 7 Earnings gap¹ between permanent and temporary employees

	Men	Women
\$		
Average hourly earnings		
Permanent employees	20.84	17.40
%		
Earnings gap relative to permanent employees		
Unadjusted		
Contract	-18	-8
Seasonal	-32	-35
Casual and other	-40	-25
Adjusted for demographic differences²		
Contract	-10	-5
Seasonal	-14	-17
Casual and other	-21	-10
Adjusted for demographic and labour market differences³		
Contract	-8	-5
Seasonal	-11	-14
Casual and other	-12	-6
Adjusted for demographic and labour market differences⁴		
Contract	-9	-8
Seasonal	-11	-16
Casual and other	-12	-8

1. See *Data source and definitions* for details about how the adjusted gap was derived.
2. Earnings differences adjusted for age, education, student status, family type, recent immigrant status, province, and CMA versus non-CMA.
3. Earnings differences adjusted for (2) above and selected job characteristics (part time, unionization and company size).
4. The "job duration" variable was also tested, even though, by definition, temporary employees have short job durations. However, part of the gap could also be attributable to temporary employees' low seniority. Adding the "job duration" and "job duration squared" variables reduces the adjusted earnings gap by a few additional percentage points: by 1 to 2 percentage points for men and 3 to 5 percentage points for women, depending on the type of temporary employment.

Source: Statistics Canada, Labour Force Survey, 2009.

Part of the earnings gap may also have resulted from the fact that temporary employees are less likely to be unionized and more likely to work part time and be employed in a small company. When these characteristics were taken into account, the gap narrowed by only a few percentage points for seasonal and contract workers and somewhat more for casual workers. Controlling for industry and occupation did not further explain the earnings gap. Similar results were obtained for 1997.

In general, the earnings gap was greater on a weekly basis, since temporary employees worked fewer hours (Table 8). The gap was at its highest for casual workers who worked the lowest number of hours. It varied considerably by sex and age and was smaller for women and younger people. Among workers under 20 years of age, both contract and seasonal employees generally had higher weekly earnings than permanent employees. Among workers age 20 and over, tempo-

rary employees earned less than permanent employees, and the gap tended to widen slightly with age (except for certain older age groups). Among casual workers, 47% were under 25 years of age and one-quarter were full-time students.

Just over one-half of temporary workers were single. Therefore these workers could not count on an additional income to compensate for their low employment earnings. However, even for workers in a couple relationship, significant gaps persisted between temporary and permanent workers after their spouses' earnings were taken into account (Galarneau 2005). The gap remained largest for casual workers and smallest for contract workers.

Conclusion

In 2009, temporary work accounted for 1 in 8 paid jobs. Temporary workers differ from permanent employers in that, on average, their earnings are lower

Table 8 Average weekly earnings by job type, sex and age, and gap relative to permanent employees

	Men				Women			
	Permanent	Contract	Seasonal	Casual and other	Permanent	Contract	Seasonal	Casual and other
	\$							
All ages	966	711	626	363	719	576	385	335
15 to 17	168	190	209	127	142	152	210	125
18 to 19	316	345	381	215	225	228	301	176
20 to 22	520	442	517	278	376	370	352	258
23 to 24	638	529	550	324	492	497	406	353
25 to 34	923	735	763	480	744	659	477	433
35 to 44	1,087	892	777	549	813	698	450	436
45 to 54	1,134	970	801	657	811	682	482	476
55 to 64	1,056	936	730	559	745	597	448	399
65 and over	738	694	536	357	518	601	324	262
	Gap (%)							
All ages	...	-26	-35	-62	...	-20	-46	-53
15 to 17	...	13	24	-24	...	7	47	-12
18 to 19	...	9	20	-32	...	1	34	-22
20 to 22	...	-15	-1	-47	...	-1	-6	-31
23 to 24	...	-17	-14	-49	...	1	-18	-28
25 to 34	...	-20	-17	-48	...	-11	-36	-42
35 to 44	...	-18	-28	-49	...	-14	-45	-46
45 to 54	...	-14	-29	-42	...	-16	-41	-41
55 to 64	...	-11	-31	-47	...	-20	-40	-46
65 and over	...	-6	-27	-52	...	16	-38	-49

Source: Statistics Canada, Labour Force Survey, 2009.

and they have less coverage under employee benefit plans. Although temporary jobs are often seen as a single group, trends and underlying issues vary greatly according to the type of job.

In 2009, one-half (52%) of temporary jobs were term or contract positions. Nearly 1 million workers held this type of job. Since 1997, contract employment has been the main source of growth in temporary work. It increased by more than 3% between 2005 and 2009, despite the overall decline in employment in 2008. A sizeable portion of term jobs were held by professionals, with an educated workforce that was slightly younger than permanent employees. These jobs were concentrated in public-sector industries (health, education and public administration) that were relatively less affected by the recent economic slowdown.

Seasonal employment represents 1 in 5 temporary jobs. From 2005 to 2009, it fell by more than 3%, mainly due to a downturn in traditional industries like fishing and forestry, the general decline in manufacturing, and an employment drop in accommodation and food services. In 2009, construction remained the leading industry for this type of job while the primary sector gave up second place to information and culture. Two-thirds of seasonal job holders are men, and seasonal employees are slightly younger and less educated than those with permanent jobs. Nearly 4 in 10 seasonal jobs are located outside the large centres.

Employees with casual jobs are mainly in retail and wholesale trade, educational services, health care, and accommodation and food services. This type of employment declined by more than 10% between 2005 and 2009, with losses in most sectors. Nearly one-half (47%) of casual employees were under 25 years of age, and one-quarter of them were students.

Whether temporary employment is observed at a peak or when nearing a low, the average gap in earnings between temporary and permanent jobs holds steady, varying according to the type of temporary job and being generally smaller for contract workers and larger for seasonal workers. Part of the gap is attributable to the different demographic characteristics of temporary workers, like their younger age and lower education level. After adjustment for these differences, the gap ranged between 5% and 21%, depending on sex and type of temporary employment. An additional part of the gap was explained by characteristics such as unionization, work arrangements and company size

(especially for casual employees, for whom the earnings gap was then comparable to that of other temporary employees).

The earnings gap was greater on a weekly basis since temporary employees worked fewer hours. The gap varied greatly according to sex and age, being smaller for women and younger persons.

Following the overall downturn in employment, temporary work generally declined. Only contract jobs appeared to regain some of their momentum.

Perspectives

■ Notes

1. On a scale of 1 to 10, where 10 means "very satisfied," approximately 6 in 10 permanent and temporary workers gave a score of 8 or more when asked about their level of overall satisfaction with their jobs.
2. The increase in the proportion of contract jobs is statistically significant at the 5% threshold.
3. Jobs in these industries are often held by self-employed workers. However, the self-employed are excluded from this study, which focuses solely on paid workers.
4. Before January 2007, jobs obtained through temporary help agencies constituted a separate temporary job category. This category was removed from the survey in January 2007. For more details, see *Temporary help agencies*.
5. Increase statistically significant at the 5% threshold.
6. Includes agriculture, mining and forestry.
7. Includes the television, radio and Internet industries.
8. A sizeable proportion of seasonal manufacturing jobs are in the agri-food industry (e.g., fish processing).
9. Increase in shares is statistically significant at the 5% threshold.
10. The differences noted in the text are all statistically significant at the 5% threshold.
11. The differences noted in the text are all statistically significant at the 5% threshold.
12. Decrease is statistically significant at the 5% threshold.
13. See *Data source and definitions*.

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What's new?

Recent reports and studies

■ From Statistics Canada

■ ***Dropout rates and labour market outcomes of young dropouts***

Using data from the Labour Force Survey, this article examines trends in high school dropout rates and labour market outcomes of dropouts over the 1990-1991 to 2009-2010 period. It also looks at dropout rate differences between Aboriginals and immigrants and the rest of the population.

High school dropout rates among Canadians age 20 to 24 have decreased significantly in the 1990s and 2000s, and the rate continues to be lower for women. Also, the dropout rate is lower for immigrant youths compared to Canadian born, and higher for Aboriginal youths compared to their non-Aboriginal counterparts.

Despite a decline in the rates, dropping out of high school continues to adversely affect labour market outcomes. About one in four dropouts age 20 to 24 who were in the labour market in 2009-2010 were unable to find jobs, a situation that worsened with the recent economic downturn. Dropouts who did find work had lower earnings than youths with a high school diploma.

For more information, see "Trends in dropout rates and the labour market outcomes of young dropouts," *Education Matters*, Statistics Canada, November 2010.

■ ***Productivity of unincorporated enterprises***

Based on new estimates of the gross domestic product (GDP) for the unincorporated sector, this study examines labour productivity in this sector and compares it to that in the corporate sector over the period 1987 to 2005. The level of nominal GDP per hour worked is significantly lower for unincorporated

enterprises (\$23.20 in 2005) than it is for corporations (\$43.40 in 2005). In 2005, GDP per hour worked in the unincorporated sector was just 53% of GDP per hour worked in the corporate sector.

For more information, see "Productivity trends of unincorporated enterprises in the Canadian economy, 1987 to 2005," *The Canadian Productivity Review*, Statistics Canada, October 2010.

■ ***Labour productivity***

The labour productivity of Canadian businesses fell 0.8% in the second quarter of 2010, following gains of 0.5% in the first quarter and 1.2% in the final quarter of 2009. The productivity decline in the second quarter reflected a slowdown in business output combined with an increase in hours worked.

The pace of growth in the real gross domestic product of businesses slowed in the second quarter, following a decline in the service sector and moderate growth in the goods sector.

At the same time, employment and hours worked in Canadian businesses both rose 1.3%. This was the highest quarterly rate of growth in hours worked since the fourth quarter of 2003, when hours worked grew by 1.4%.

In the United States, the productivity of American businesses declined by 0.5% in the second quarter—the first decline since the fourth quarter of 2008.

For more information, see the September 14, 2010 issue of *The Daily* on the Statistics Canada's website (www.statcan.gc.ca).

■ ***Income of families and individuals***

According to data derived from 2008 personal income tax returns, census metropolitan areas with the largest gains in median total family income were Saskatoon, St. John's and Greater Sudbury.

Declines were observed in some areas in southern Ontario, due in part to the importance of the manufacturing sector in that region. (Total income refers to pre-tax income and includes employment income, investment income, government transfers, pension income and other income.)

The largest increases for couple families were observed in St. John's and Saskatoon. As for lone-parent families and persons not in census families, the largest increases occurred in Saskatoon and Edmonton.

Among census agglomerations, the biggest increase in median total family income for couple families was observed in Bay Roberts, Newfoundland and Labrador. For lone-parent families, Williams Lake, British Columbia had the largest increase in median total family income, while for persons not in census families, the largest gain was in Estevan, Saskatchewan.

The census metropolitan area of Calgary had the highest median total family income, followed by Edmonton, Ottawa–Gatineau and Oshawa.

For more information, see “Family income and individuals’ income, related variables: Sub-provincial data” in the September 16, 2010 issue of *The Daily* on the Statistics Canada’s website (www.statcan.gc.ca).

■ ***Pension coverage and earnings replacement among Canadian couples***

What are the financial outcomes experienced by members and non-members of registered pension plans (RPP)? This study compares the earnings replacement rates achieved in retirement by married and common-law couples with and without RPP coverage in 1991 and/or 1992.

Couples without RPP coverage were less likely to be retired in 2006 than couples in which one spouse or both spouses had RPP coverage. Among couples without RPPs, those from the top of the 1989-1991 earnings distribution were more likely to continue working until older ages than those from the bottom.

Among retired couples from the middle of the earnings distribution, the earnings replacement rates of those without RPPs are more widely dispersed than those of couples with RPP coverage. Larger shares of retired couples without pensions than of couples with pension coverage have earnings replacement rates

below 0.60, with the magnitude of this difference ranging from about 10 to 15 percentage points in the second and third quintiles, and from 5 to 8 percentage points in the fourth quintile.

However, couples without pensions are also more likely than couples with pension coverage to have earnings replacement rates of 1.00 or more, with the difference ranging from about 7 to 13 points in the second, third and fourth quintiles. As a result of the asymmetric distribution of replacement rates among no-pension couples, different measures of central tendency yield different results.

The average earnings replacement rates of retired couples without RPP pension coverage from the second quintile to the fourth quintile are 6 to 12 points higher than the average rates of retired couples with RPP pension coverage. Conversely, the median earnings replacement rate of retired couples without RPP pension coverage is about 3 to 6 points lower than that of retired couples with RPP pension coverage.

For more information, see “Pension coverage and earnings replacement rates among Canadian couples,” *Analytical Studies Branch Research Paper Series*, July 2010, Statistics Canada.

■ ***A note on pension coverage and earnings replacement rates of retired men***

Using data from the Longitudinal Administrative Database, this paper compares the distributions of earnings replacement rates among retired men who were or were not members of a registered pension plan (RPP) in 1991 and/or 1992.

The distributions of earnings replacement rates of men who were not RPP members are far more dispersed than those of men who were RPP members. And while the average earnings replacement rates of the two groups are generally comparable, the median earnings replacement rates of RPP non-members are lower than those of RPP members as a result of asymmetry in the distributions.

For more information, see “A note on pension coverage and earnings replacement rates of retired men: A closer look at distributions,” *Analytical Studies Branch Research Paper Series*, Statistics Canada, July 2010.

■ **Employment in resource sector manufacturing**

Employment in resource manufacturing is important to rural and small town areas. Directly linked to natural resources, rural and small town areas have a location advantage and are often home to the next step in the processing of natural resources.

In 2008, resource sector manufacturing was a notable employer in Canada's rural and small town areas, where it contributed more than two-thirds (69%) of the country's total manufacturing employment in rural and small town areas.

Within rural and small town areas of each province, from 52% to 92% of total manufacturing employment was comprised of resource manufacturing. As a share of total employment in rural and small town areas, employment in resource manufacturing contributed 9% of total employment at the Canada level. This ranged from 14% in Quebec to 2% of total employment in the rural and small town areas in Saskatchewan.

Over the 2001-to-2008 period, resource manufacturing in Canada declined more slowly than "other" manufacturing. At the same time, it declined more slowly in rural and small towns than in large urban centres.

For more information, see "Manufacturing employment in resource value chains: a rural-urban comparison from 2001 to 2008," *Rural and Small Town Canada Analysis Bulletin*, Statistics Canada, August 2010.

■ **From other organizations**

■ **Temporary employment and labour adjustment**

In Canada, temporary workers account for 14% of jobs in the non-farm business sector, are present in a range of industries and account for 40% of the total job reallocation. This paper examines the role of temporary employment in labour adjustment at the micro level, as well as job turnover in general.

Ignoring temporary workers leads to estimates of labour adjustment costs parameters that are much lower than when temporary workers are taken into

account. Also, aggregate adjustment costs are underestimated when temporary workers are not accounted for in situations where a change in the economic environment disproportionately affects permanent workers. An example of such a change is the increased sectoral reallocation in Canada due to the commodity price boom and the appreciation of the Canadian dollar. See *Stability versus Flexibility: The Role of Temporary Employment in Labour Adjustment* by Shutao Cao and Danny Leung, Bank of Canada, November 2010.

■ **Long-term unemployment in tough labour markets**

The 2007-2009 recession differed substantially from past recessions in terms of the makeup of the labour force, the unemployed, and the long-term unemployed. In 2009, a 9.3% unemployment rate represented 14.3 million unemployed workers, of which close to one in three was out of work for at least half of a year.

In the first half of 2010, the long-term unemployed share climbed to almost one in two. Viewed over a longer time period, long-term unemployment has increased across successive business cycles, increasing more in bad times and falling less during expansions.

Similar to earlier recessions, those with less education, the young, and minorities were disproportionately affected. However, the impacts of the 2007-2009 recession were felt across a broader spectrum than in the past, particularly for men. See "The composition of the unemployed and long-term unemployed in tough labour markets" by Sylvia Allegretto and Devon Lynch, *Monthly Labor Review*, U.S. Bureau of Labor Statistics, September 2010.

■ **The expanding role of temporary help services**

The role of temporary help services has grown substantially. This growth has been driven by the flexibility and low labour cost of temporary workers. From 1990 to 2008, total temporary employment in the United States increased from 1.1 million to 2.3 million, representing 1.7% of total U.S. employment in 2008.

Traditionally, temporary workers have worked in lower paying occupations. However, work in temporary help services has gained prominence in recent

years in higher skilled and higher paying occupations. The industries which typically employ temporary workers include manufacturing; trade, transportation, and utilities; financial activities, and professional and business services.

Despite a steep decline in recent years, temporary employment has remained an important indicator of the overall economy. Temporary workers are among the first to be hired during economic expansions; they are also laid off in disproportionate numbers during times of recession. Hence, temporary help services has grown in importance not only with respect to the

industries and occupations associated with it and the areas where it is found, but also because of its function as a macroeconomic buffer during periods of economic volatility. See "The expanding role of temporary help services from 1990 to 2008" by Tian Luo, Amar Mann and Richard Holden, *Monthly Labor Review*, U.S. Bureau of Labor Statistics, August 2010.

Perspectives

We welcome your views on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

Statistics Canada reserves the right to select and edit items for publication. Correspondence, in either official language, should be addressed to *Perspectives on Labour and Income*, 170 Tunney's Pasture Driveway, 7th floor, Jean Talon, Statistics Canada, Ottawa, Ontario K1A 0T6. Fax 613-951-2869; e-mail: perspectives@statcan.gc.ca.

Varia

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Unionization 2010

Unionization rates in the first half of 2009 and 2010

Average paid employment (employees) during the first half of 2010 was 14.3 million, an increase of 171,000 over the same period one year earlier (Table 1). The number of unionized employees also increased by 64,000 (to 4.2 million). However, since union membership rose slightly more rapidly than employment, the unionization rate edged up from 29.5% in 2009 to 29.6% in 2010.

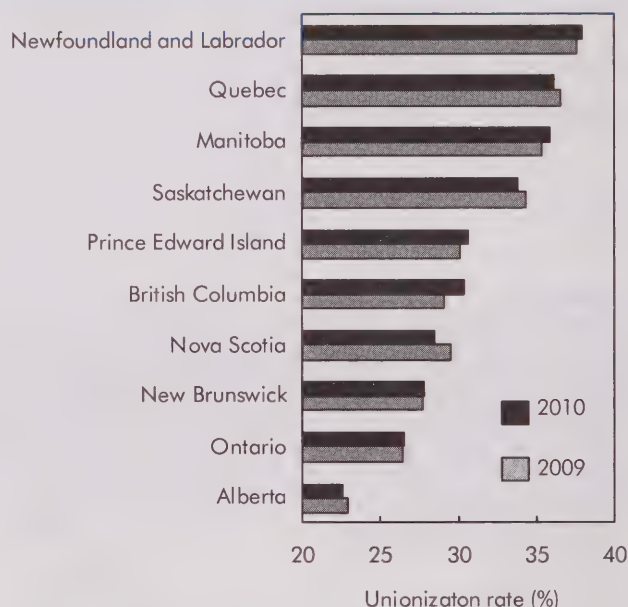
As women experienced disproportionately more gains in unionized jobs, their unionization rate rose to 30.9%. The unionization rate for men remained constant at 28.2%. As a result, the gap in the rates between men and women widened further in 2010.

As with overall job gains, gains in unionized jobs were spread over full-time and part-time jobs. Unionization among full-time workers increased to 31.1%. The unionization rate of part-time workers rose to 23.5% in 2010.

Data sources

Information on union membership, density and coverage by various sociodemographic characteristics, including earnings, are from the Labour Force Survey. Further details can be obtained from Marc Lévesque, Labour Statistics Division, Statistics Canada, 613-951-4090. Data on strikes, lockouts and workdays lost, and those on major wage settlements were supplied by Human Resources and Skills Development Canada (HRSDC). Further information on these statistics may be obtained from Client Services, Workplace Information Directorate, HRSDC, 1-800-567-6866.

Chart A Newfoundland and Labrador, the most unionized province; Alberta, the least



Source: Statistics Canada, Labour Force Survey, January-to-June averages.

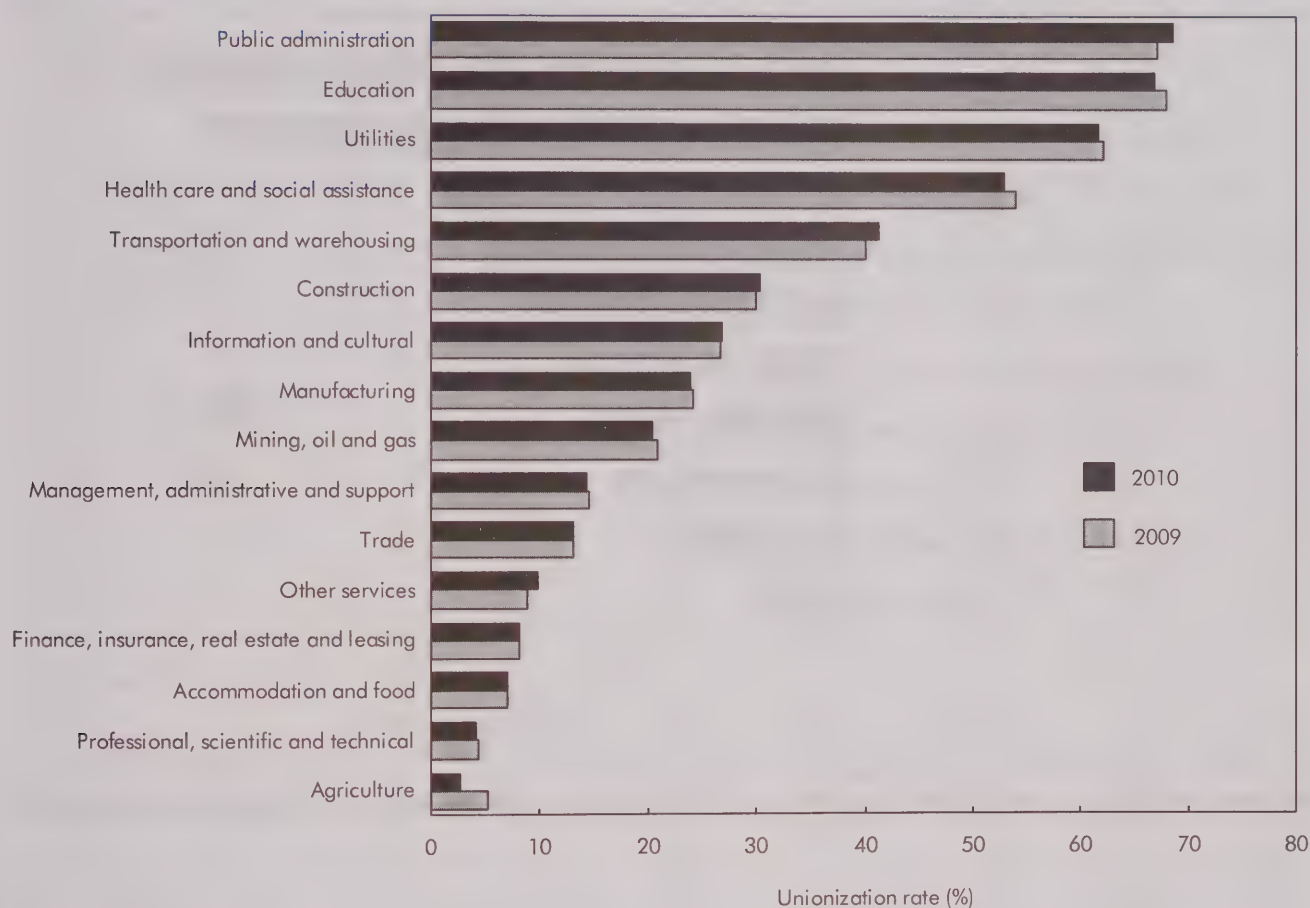
The unionization rate for permanent employees increased to 30.0%. However, it decreased to 27.3% for those in non-permanent jobs. Between 2009 and 2010, the unionization rate rose in larger firms (100 employees or more), decreased for those with 20 to 99 employees, and remained constant for firms with fewer than 20 employees.

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The provincial picture was more mixed (Chart A). Six provinces recorded increases in their unionization rates, British Columbia being the one with the largest increase. In contrast, unionization decreased in Nova Scotia, Quebec, Saskatchewan and Alberta.

Changes in unionization rates varied across industries. Notable declines were observed in agriculture, health care and social assistance, and education. Notable increases occurred in transportation and warehousing, and public administration. (Chart B).

Chart B The highest unionization rates were in public sector industries



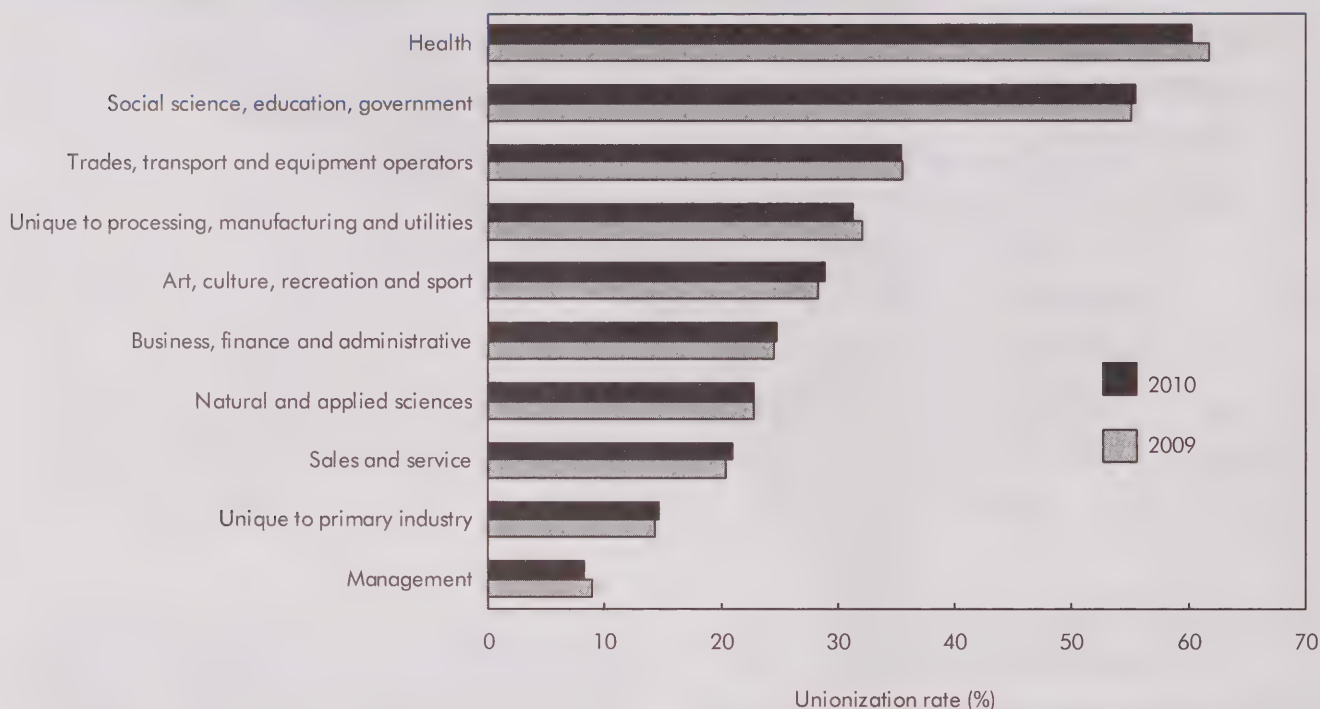
Source: Statistics Canada, Labour Force Survey, January-to-June averages.

Changes in the unionization rate also varied across 10 major occupational groups (Chart C). Unionization declined most in health and management, and among occupations unique to processing, manufacturing and utilities. The unionization rate also declined in trades, transport and equipment operator occupations. Conversely, it rose in art, culture, recreation and sport oc-

cupations, and sales and service. Changes in the unionization rate were more modest among other major occupational categories.

Finally, the number of employees who were not union members but were covered by a collective agreement averaged 288,000 in the first half of 2010, a decrease from last year's total of 300,000.

Chart C Unionization in community service occupations far outpaced that in others



Source: Statistics Canada, Labour Force Survey, January-to-June averages.

Table 1 Union membership and coverage by selected characteristics

	2009			2010		
	Total employees	Union density		Total employees	Union density	
		Members	Coverage ¹		Members	Coverage ¹
	'000	%	%	'000	%	%
Both sexes	14,087	29.5	31.6	14,258	29.6	31.6
Men	6,963	28.2	30.4	7,049	28.2	30.4
Women	7,123	30.8	32.9	7,209	30.9	32.8
Sector²						
Public	3,423	71.3	75.1	3,509	71.2	74.8
Private	10,664	16.1	17.7	10,749	16.0	17.5
Age						
15 to 24	2,321	14.7	16.5	2,281	14.9	16.5
25 to 54	9,800	31.9	34.1	9,920	32.0	34.1
25 to 44	6,415	29.4	31.6	6,475	30.0	32.2
45 to 54	3,385	36.6	38.8	3,445	35.8	37.8
55 and over	1,966	35.2	37.3	2,057	34.4	36.3
Education						
Less than Grade 9	289	24.4	26.4	277	24.0	25.3
Some high school	1,344	20.1	21.6	1,295	20.4	22.0
High school graduation	2,788	25.3	26.9	2,858	25.7	27.0
Some postsecondary	1,229	21.6	23.3	1,205	22.6	24.6
Postsecondary certificate or diploma	5,003	33.2	35.6	5,032	33.3	35.4
University degree	3,434	34.5	37.1	3,591	33.6	36.3
Province						
Atlantic	954	30.5	32.0	954	30.3	31.7
Newfoundland and Labrador	189	37.5	39.3	193	37.9	39.7
Prince Edward Island	58	30.1	32.6	58	30.7	33.0
Nova Scotia	388	29.5	30.8	388	28.4	29.6
New Brunswick	319	27.7	29.1	314	27.8	29.2
Quebec	3,257	36.5	40.0	3,327	36.1	39.3
Ontario	5,480	26.4	28.1	5,553	26.5	27.9
Prairies	2,585	27.3	29.2	2,587	27.1	29.6
Manitoba	520	35.4	37.4	524	35.9	38.1
Saskatchewan	422	34.3	36.3	422	33.8	35.9
Alberta	1,643	22.9	24.8	1,641	22.6	25.2
British Columbia	1,811	29.1	30.6	1,838	30.4	31.8
Work status						
Full-time	11,398	31.0	33.2	11,530	31.1	33.2
Part-time	2,689	23.3	25.1	2,728	23.5	25.0
Industry						
Goods-producing	2,970	26.5	28.5	2,962	26.5	28.6
Agriculture	114	5.3	6.3	100	2.7	3.2
Natural resources	271	20.9	22.3	277	20.3	23.1
Utilities	147	62.2	67.0	146	61.6	65.5
Construction	744	30.0	31.8	801	30.3	32.0
Manufacturing	1,694	24.2	26.2	1,638	24.0	26.2
Service-producing	11,117	30.3	32.5	11,296	30.4	32.4
Trade	2,319	13.1	14.7	2,378	13.1	14.4
Transportation and warehousing	690	40.0	41.7	645	41.3	42.8
Finance, insurance, real estate and leasing	902	8.2	9.6	909	8.2	9.2
Professional, scientific and technical	786	4.3	5.2	821	4.2	5.3
Business, building and other support	490	14.6	16.2	495	14.3	16.2
Education	1,163	68.0	71.9	1,207	67.0	70.9
Health care and social assistance	1,704	54.0	56.4	1,778	52.9	55.3
Information, culture and recreation	626	26.6	28.6	625	26.9	28.3
Accommodation and food	972	7.0	7.8	978	7.0	7.8
Other	546	8.8	10.1	524	9.8	11.0
Public administration	920	67.2	72.8	935	68.5	73.4

Table 1 Union membership and coverage by selected characteristics (concluded)

	2009			2010		
	Total employees	Union density		Total employees	Union density	
		Members	Coverage ¹		Members	Coverage ¹
	'000	%	%	'000	%	%
Occupation						
Management	1,019	8.9	11.2	1,019	8.3	10.9
Business, finance and administrative	2,787	24.6	26.7	2,751	24.7	26.5
Professional	420	18.0	19.5	407	16.1	17.9
Financial and administrative	733	24.2	26.5	734	25.3	27.4
Clerical	1,634	26.5	28.7	1,610	26.6	28.3
Natural and applied sciences	1,036	22.8	24.9	1,098	22.8	24.9
Health	912	61.7	64.2	951	60.2	62.4
Professional	105	40.2	46.1	107	38.2	44.7
Nursing	273	81.5	83.1	278	78.5	80.5
Technical	216	57.5	60.0	223	59.8	61.0
Support staff	319	54.8	56.7	342	52.5	54.2
Social science, education, government	1,387	55.1	58.2	1,437	55.4	58.7
Legal, social and religious workers	683	35.9	38.4	714	37.1	40.0
Teachers and professors	704	73.7	77.4	724	73.5	77.2
Secondary and elementary	485	85.5	88.2	492	85.9	88.0
Other	219	47.5	53.7	232	47.1	54.3
Art, culture, recreation and sport	322	28.3	30.9	341	28.9	30.8
Sales and service	3,658	20.5	22.3	3,716	21.0	22.5
Wholesale	383	4.9	6.1	386	5.5	6.8
Retail	1,025	11.7	12.9	1,080	13.2	14.3
Food and beverage	531	9.9	10.8	527	10.1	10.8
Protective services	250	54.0	61.4	251	57.6	62.4
Child care and home support	195	49.6	51.2	200	45.4	48.4
Travel and accommodation	1,274	25.7	27.3	1,272	25.6	27.0
Trades, transport and equipment operators	1,968	35.6	37.6	1,968	35.4	37.4
Contractors and supervisors	140	27.2	29.6	138	29.0	30.9
Construction trades	271	38.1	39.7	283	35.7	37.2
Other trades	768	38.1	40.3	760	37.7	40.0
Transportation equipment operators	490	34.7	36.0	484	37.0	38.7
Helpers and labourers	300	32.1	34.8	303	29.5	32.2
Unique to primary industry	253	14.3	15.9	241	14.6	15.9
Unique to processing, manufacturing and utilities	745	32.1	34.3	736	31.3	33.2
Machine operators and assemblers	603	31.7	33.7	590	30.7	32.6
Labourers	143	34.0	36.9	146	33.6	35.3
Workplace size						
Under 20 employees	4,697	13.4	14.9	4,806	13.4	14.7
20 to 99 employees	4,732	30.2	32.4	4,707	29.8	32.0
100 to 500 employees	2,883	40.4	43.1	2,949	41.1	43.5
Over 500 employees	1,775	52.7	55.4	1,797	53.7	56.5
Job tenure						
1 to 12 months	3,053	16.4	18.6	2,855	16.0	18.0
Over 1 year to 5 years	4,753	23.4	25.3	4,936	24.3	26.1
Over 5 years to 9 years	2,051	32.2	34.4	2,012	31.6	33.6
Over 9 years to 14 years	1,464	34.9	36.8	1,657	36.5	38.2
Over 14 years	2,766	49.6	52.1	2,798	47.4	49.9
Job status						
Permanent	12,449	29.8	31.8	12,434	30.0	31.9
Non-permanent	1,638	27.7	30.4	1,824	27.3	29.7

1. Union members and persons who are not union members but covered by collective agreements (for example, some religious group members).

2. Public sector employees are those working for government departments or agencies; Crown corporations; or publicly funded schools, hospitals or other institutions. Private sector employees are all other wage and salary earners.

Source: Statistics Canada, Labour Force Survey, January-to-June averages.

2009 annual averages

Approximately 4.2 million employees (29.3%) belonged to a union in 2009 and another 296,000 (2.1%) were covered by a collective agreement (Table 2).

In the public sector, which consisted of government, Crown corporations, and publicly funded schools and hospitals, 70.9% of employees belonged to a union. This was more than four times the rate for the private sector (16.1%).

Approximately one-third of full-time employees belonged to a union, compared with about one-fourth of part-time employees. Also, almost 30% of permanent employees were union members, compared with about 27% of non-permanent employees.

Unionization rates also varied by age group, with 36.4% of those age 45 to 54 belonging to a union compared to 14.6% of those age 15 to 24. High unionization rates were also found among those with a university degree (34.0%) or a postsecondary certificate or diploma (33.2%); in Newfoundland and Labrador (37.4%) and in Quebec (36.3%); in educational services (67.6%), public administration (66.9%) and utilities (61.8%); and in health care occupations (61.5%). Low unionization rates were recorded in Alberta (22.9%); in agriculture (4.5%) and professional, scientific and technical services (4.2%); and in management occupations (9.1%).

Table 2 Union membership, 2009

	Total employees	Union member ¹	
		Total	Density
	'000	'000	%
Both sexes	14,147	4,152	29.3
Men	7,030	1,977	28.1
Women	7,117	2,175	30.6
Sector²			
Public	3,412	2,418	70.9
Private	10,735	1,734	16.1
Age			
15 to 24	2,345	343	14.6
25 to 54	9,823	3,125	31.8
25 to 44	6,430	1,889	29.4
45 to 54	3,394	1,235	36.4
55 and over	1,979	685	34.6
Education			
Less than Grade 9	285	70	24.4
Some high school	1,331	269	20.2
High school graduation	2,848	711	25.0
Some postsecondary	1,213	262	21.6
Postsecondary certificate or diploma	5,032	1,670	33.2
University degree	3,438	1,170	34.0
Province			
Atlantic	969	294	30.3
Newfoundland and Labrador	194	73	37.4
Prince Edward Island	59	18	29.9
Nova Scotia	392	115	29.4
New Brunswick	324	89	27.4
Quebec	3,280	1,192	36.3
Ontario	5,504	1,430	26.0
Prairies	2,581	700	27.1
Manitoba	523	183	34.9
Saskatchewan	421	143	33.9
Alberta	1,636	375	22.9
British Columbia	1,813	536	29.6
Work status			
Full-time	11,537	3,542	30.7
Part-time	2,610	609	23.3
Industry			
Goods-producing	3,023	807	26.7
Agriculture	118	5	4.5
Natural resources	272	59	21.7
Utilities	147	91	61.8
Construction	795	236	29.6
Manufacturing	1,690	416	24.6
Service-producing	11,125	3,345	30.1
Trade	2,338	312	13.3
Transportation and warehousing	677	271	40.1
Finance, insurance, real estate and leasing	902	74	8.2
Professional, scientific and technical	781	32	4.2
Business, building and other support	492	70	14.2
Education	1,135	767	67.6
Health care and social assistance	1,718	921	53.6
Information, culture and recreation	646	163	25.2
Accommodation and food	966	67	6.9
Other	545	48	8.8
Public administration	927	620	66.9

Differences between the sexes

For the sixth year in a row, the unionization rate for women in 2009 surpassed the rate for men (30.6% vs. 28.1%). The gap widened by 1.2 percentage points compared with 2008.

Among men, part-time employees had a much lower rate than full-time employees (19.3% versus 29.2%). Among women, the gap was narrower (25.1% versus 32.4%) (data not shown). The unionization rate for women in the public sector (73.0%) exceeded the rate for men (67.5%), reflecting women's presence in public administration, and in teaching and health positions. However, in the private sector, only 12.7% of women were unionized, compared with 19.2% of men. The lower rate among women reflected their predominance in sales and several service occupations.

A higher-than-average rate was recorded among men with a postsecondary certificate or diploma (33.0%). For women, the highest rate was among those with a university degree (40.8%), reflecting unionization in occupations like health care and teaching.

Among those in permanent positions, the rate for men (28.6%) was lower than the rate for women (30.8%). The gap was even more predominant among those in non-permanent positions (28.9% for women versus 24.5% for men).

Table 2 Union membership, 2009 (concluded)

	Total employees	Union member ¹	
		Total	Density
	'000	'000	%
Occupation			
Management	1,022	93	9.1
Business, finance and administrative	2,761	676	24.5
Professional	411	72	17.5
Financial and administrative	732	175	23.9
Clerical	1,618	429	26.5
Natural and applied sciences	1,047	243	23.2
Health	924	568	61.5
Professional	109	44	40.5
Nursing	281	227	80.8
Technical	221	127	57.5
Support staff	313	170	54.2
Social science, education, government	1,378	752	54.6
Legal, social and religious workers	687	247	35.9
Teachers and professors	691	506	73.2
Secondary and elementary	466	398	85.5
Other	226	108	47.7
Art, culture, recreation and sport	334	89	26.5
Sales and service	3,654	742	20.3
Wholesale	382	19	4.9
Retail	1,052	130	12.3
Food and beverage	524	50	9.5
Protective services	248	136	54.8
Child care and home support	182	84	45.9
Travel and accommodation	1,267	325	25.6
Trades, transport and equipment operators	2,012	703	34.9
Contractors and supervisors	141	40	28.2
Construction trades	280	103	37.0
Other trades	771	286	37.1
Transportation equipment operators	500	173	34.6
Helpers and labourers	322	101	31.3
Unique to primary industry	267	38	14.3
Unique to processing, manufacturing and utilities	747	248	33.1
Machine operators and assemblers	603	197	32.7
Labourers	144	50	34.9
Workplace size			
Under 20 employees	4,724	627	13.3
20 to 99 employees	4,732	1,404	29.7
100 to 500 employees	2,899	1,186	40.9
Over 500 employees	1,792	935	52.2
Job tenure			
1 to 12 months	2,988	486	16.3
Over 1 year to 5 years	4,849	1,132	23.3
Over 5 years to 9 years	2,053	659	32.1
Over 9 years to 14 years	1,509	529	35.1
Over 14 years	2,749	1,346	49.0
Job status			
Permanent	12,381	3,678	29.7
Non-permanent	1,766	473	26.8

1. Excludes non-members covered by a collective agreement.

2. Public sector employees are those working for government departments or agencies; Crown corporations; or publicly funded schools, hospitals or other institutions. Private sector employees are all other wage and salary earners.

Source: Statistics Canada, Labour Force Survey.

Average earnings and usual hours

Earnings are generally higher in unionized than non-unionized jobs. Factors other than collective bargaining provisions contribute to this. These include varying distributions of unionized employees by age, sex, job tenure, industry, occupation, firm size, and geographical location. The effects of these factors are not examined here. However, unionized workers and jobs clearly have characteristics that are associated with higher earnings. For example, unionization is higher for older workers, those with more education, those with long tenure, and those in larger workplaces. Still, a wage premium exists, which, after controlling for employee and workplace characteristics, has been estimated at 7.7% (Fang and Verma 2002).

Average hourly earnings of unionized workers were higher than those of non-unionized workers in 2009 (Table 3). This held true for both full-time employees (\$25.93 versus \$22.35) and part-time employees (\$21.25 versus \$13.71). Unionized part-time employees not only had higher hourly earnings, but they also worked more (19.2 hours versus 16.7 hours). This led to a larger gap in weekly earnings (\$414.55 versus \$236.19).

Table 3 Average earnings and usual hours by union and job status, 2009

	Hourly earnings			Usual weekly hours, main job		
	All employees	Full-time	Part-time	All employees	Full-time	Part-time
		\$			hours	
Both sexes	22.05	23.52	15.57	35.2	39.2	17.3
Union member	25.24	25.93	21.25	35.6	38.4	19.2
Union coverage ¹	25.20	25.90	21.14	35.6	38.5	19.1
Not a union member ²	20.61	22.35	13.71	35.0	39.6	16.7
Men	23.87	25.05	14.66	37.7	40.4	16.5
Union member	26.00	26.58	19.26	37.9	39.6	18.1
Union coverage ¹	26.00	26.58	19.19	37.9	39.6	17.9
Not a union member ²	22.95	24.35	13.46	37.6	40.8	16.1
Women	20.25	21.71	15.97	32.7	37.9	17.7
Union member	24.54	25.24	21.92	33.5	37.2	19.6
Union coverage ¹	24.46	25.16	21.81	33.5	37.2	19.5
Not a union member ²	18.22	19.89	13.83	32.4	38.2	17.0
Atlantic	18.93	19.95	13.46	36.6	40.3	17.3
Union member	23.37	23.66	20.76	37.4	39.4	19.8
Union coverage ¹	23.36	23.65	20.70	37.4	39.4	19.7
Not a union member ²	16.86	18.05	11.62	36.3	40.7	16.7
Quebec	20.80	22.04	15.23	34.4	38.1	18.1
Union member	23.65	24.09	20.90	35.1	37.5	20.3
Union coverage ¹	23.48	23.93	20.60	35.1	37.5	20.1
Not a union member ²	19.03	20.67	12.93	34.0	38.5	17.3
Ontario	22.75	24.48	15.25	35.2	39.4	17.0
Union member	26.53	27.58	20.55	35.6	38.6	18.4
Union coverage ¹	26.58	27.64	20.54	35.7	38.7	18.3
Not a union member ²	21.30	23.20	13.74	35.0	39.6	16.6
Prairies	23.20	24.61	16.58	36.1	40.1	17.3
Union member	25.82	26.49	22.20	36.0	39.1	19.1
Union coverage ¹	25.84	26.49	22.31	36.1	39.2	19.1
Not a union member ²	22.12	23.81	14.60	36.1	40.5	16.7
British Columbia	22.21	23.69	16.64	34.6	39.3	17.1
Union member	25.60	26.27	22.48	35.1	38.6	18.9
Union coverage ¹	25.63	26.34	22.27	35.2	38.7	18.8
Not a union member ²	20.68	22.42	14.66	34.4	39.6	16.5

1. Union members and persons who are not union members but covered by collective agreements (for example, some religious group members).

2. Workers who are neither union members nor covered by collective agreements.

Source: Statistics Canada, Labour Force Survey.

On average, full-time unionized women earned 95% of the amount their male counterparts earned per hour. In contrast, those working part time earned 14% more.

Wage settlements, inflation and labour disputes

The wage rate increase for collective agreement negotiated in 2009 was lower than the previous year (2.4% versus 3.2%) (Table 4). This was the fifth consecutive year in which the increase in wages surpassed the rate

of inflation. For the fourth year in a row, the wage gain in the public sector exceeded the gain in the private sector (2.5% versus 1.8%). This trend continued in the first four months of 2010 whereby gains stood at 2.2% in the public sector and 1.9% in the private sector.

Table 4 Major wage settlements, inflation and labour disputes

Year	Average annual increase in base wage rates ¹			Annual change in consumer price index ¹	Labour disputes and time lost ²			
	Public sector employees ³	Private sector employees ³	Total employees		Strikes and lockouts ⁴	Workers involved	Person-days not worked	Proportion of estimated working time
			%			'000	'000	%
1980	10.9	11.7	11.1	10.0	1,028	452	9,130	0.37
1981	13.1	12.7	13.0	12.5	1,049	342	8,850	0.35
1982	10.4	9.5	10.2	10.9	679	464	5,702	0.23
1983	4.6	5.5	4.8	5.8	645	330	4,441	0.18
1984	3.9	3.2	3.6	4.3	716	187	3,883	0.15
1985	3.8	3.3	3.7	4.0	829	164	3,126	0.12
1986	3.6	3.0	3.4	4.1	748	486	7,151	0.27
1987	4.1	3.8	4.0	4.4	668	582	3,810	0.14
1988	4.0	5.0	4.4	3.9	548	207	4,901	0.17
1989	5.2	5.2	5.2	5.1	627	445	3,701	0.13
1990	5.6	5.7	5.6	4.8	579	271	5,516	0.09
1992	2.0	2.6	2.1	1.4	404	152	2,110	0.07
1993	0.6	0.8	0.7	1.9	381	102	1,517	0.05
1994	0.0	1.2	0.3	0.1	374	81	1,607	0.06
1995	0.6	1.4	0.9	2.2	328	149	1,583	0.05
1996	0.5	1.7	0.9	1.5	330	276	3,269	0.11
1997	1.1	1.8	1.4	1.7	284	258	3,608	0.12
1998	1.6	1.8	1.7	1.0	381	244	2,440	0.08
1999	1.9	2.7	2.2	1.8	413	160	2,441	0.08
2000	2.5	2.4	2.5	2.7	378	143	1,644	0.05
2001	3.4	3.0	3.3	2.5	381	221	2,203	0.07
2002	2.9	2.6	2.8	2.2	294	166	2,986	0.09
2003	2.9	1.2	2.5	2.8	266	79	1,730	0.05
2004	1.4	2.3	1.8	1.8	297	259	3,185	0.09
2005	2.3	2.5	2.3	2.2	260	199	4,148	0.11
2006	2.6	2.2	2.5	2.0	151	42	793	0.02
2007	3.4	3.2	3.3	2.2	206	66	1,771	0.05
2008	3.5	2.5	3.2	2.3	188	41	876	0.02
2009	2.5	1.8	2.4	0.3	157	67	2,179	0.06
2010 ⁵	2.2	1.9	2.1	1.7	..	..	..	..

1. Involving 500 or more employees.

2. Involving 1 worker or more.

3. Public sector employees are those working for government departments or agencies; Crown corporations; or publicly funded schools, hospitals or other institutions. Private sector employees are all other wage and salary earners.

4. Minimum of ten person-days not worked.

5. 2010 data refer to January to April only.

Sources: Statistics Canada, Prices Division; Human Resources and Social Development Canada, Workplace Information Directorate.

Annual statistics on strikes, lockouts and person-days lost are affected by several factors, including collective bargaining timetables, size of the unions involved, strike or lockout duration, and state of the economy. The number of collective agreements up for renewal in a given year determines the potential for industrial disputes. Union size and strike or lockout duration determine the number of person-days lost. The state of the economy influences the likelihood of an industrial dispute, given that one is legally possible. The proportion of estimated working time lost due to strikes and lockouts increased to 0.06% in 2009 from 0.02% in 2008.

Perspectives

■ Reference

Fang, Tony and Anil Verma. 2002. "Union wage premium." *Perspectives on Labour and Income*. Vol. 3, no. 9. September. Statistics Canada Catalogue no. 75-001-XIE. p. 13-19. <http://www.statcan.ca/english/freepub/75-001-XIE/75-001-XIE2002109.pdf> (accessed August 17, 2010).

In the works

Some of the topics in upcoming issues

■ Women's work transitions

Using Statistics Canada's Longitudinal Workers File, this study will shed light on the labour market transitions of women over a 25-year period, as well as possible differences between birth cohorts.

■ The impact of labour force aging on hours worked

This study looks at general trends in actual hours, focusing on recent years in order to determine how much of the decline in work hours is attributable to the workforce aging and whether there are differences between the public sector and the private sector. Using employment projections, the study will also examine work hours during the next five years.

■ Retiring with debt

Using data from the Canadian Financial Capability Survey, this article examines the debt load situation of people in pre-retirement and those retired. The paper will include an overview of the financial situation, budget and savings behaviour, and financial knowledge of these groups, as well as an analysis of factors associated with the likelihood of carrying consumer or mortgage debt.

■ The rising indebtedness of Canadians

This study uses data from multiple sources to examine trends in household debt over the past 25 years and the effects of indebtedness on household spending.

■ Income and wealth of older immigrants in Canada

Using data from the Survey of Labour and Income Dynamics and the Survey of Financial Security, this article attempts to shed light on the income and wealth of older immigrants in Canada.

■ Spending and consumption patterns among seniors

Applying a synthetic cohort approach to data from the Survey of Household Spending and the Family Expenditure Survey, this article examines how consumption patterns change for a given cohort of seniors as they age.

Perspectives

Cumulative index

1989 to 2010

This index lists articles published in Perspectives on Labour and Income (Catalogue no. 75-001-XPE) since its inception (Summer 1989) up to and including the latest issue. For further information, call Ted Wannell (613) 951-3546. The online publication date is shown in parentheses.

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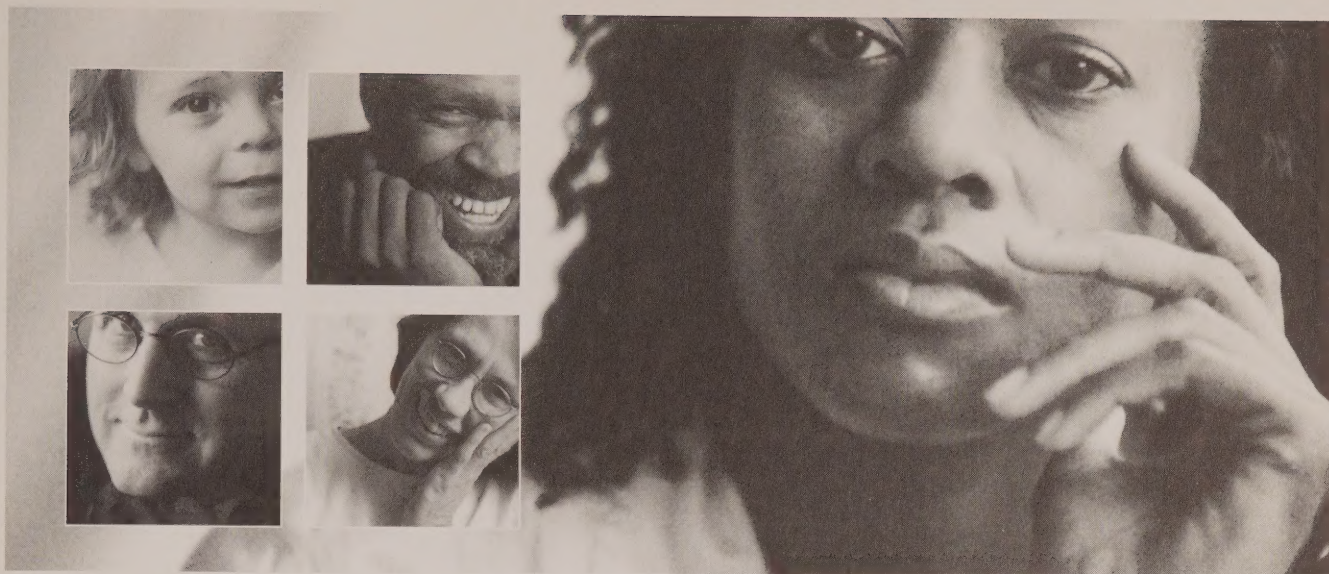
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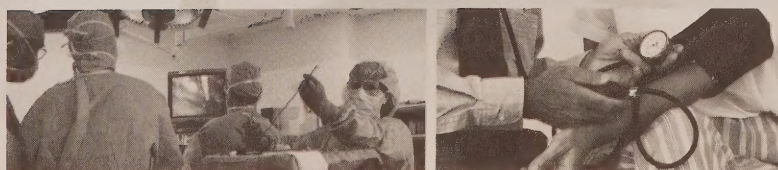
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